**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY**
**AIR QUALITY DIVISION**

**MEMORANDUM** **January 15, 2016**

**TO:** Phillip Fielder, P.E., Permits and Engineering Group Manager

**THROUGH:** Phil Martin, P.E., Manager, Existing Source Permits Section

**THROUGH:** Peer Review

**FROM:** David Schutz, P.E., New Source Permit Section

**SUBJECT:** Evaluation of Permit Application No. **2015-0643-C (PSD)**
Commercial Metals Company
Greenfield Steel Mill (FAC ID 14935)
Sec. 34 – 6S – 9E
Durant, Bryan County, Oklahoma
Intersection of Old US-70 and McLean Road
Latitude: 33.98073$^{o}$, Longitude -96.34674$^{o}$

## SECTION I. INTRODUCTION

Commercial Metals Company (CMC) has submitted an application for a PSD construction permit for a greenfield steel mill to be located at Durant (SIC 3312).

Since the construction adds emissions above PSD levels of significance, the application was determined to require full PSD review. Full PSD review consisted of the following:

A. Determination of Best Available Control Technology (BACT).

B. Evaluation of existing air quality and determination of monitoring requirements.

C. Analysis of compliance with National Ambient Air Quality Standards (NAAQS).

D. Evaluation of PSD increment consumption.

E. Evaluation of source-related impacts on growth, soils, vegetation, and visibility.

F. Evaluation of Class I area impacts.

## SECTION II. PROCESS DESCRIPTIONS

In this steel mill, CMC will manufacture steel products from scrap steel. Iron ore will not be processed at the mill.

In the proposed CMC mill, scrap metal will be transported into the facility to be used as feedstock for the Melt Shop. In the Melt Shop, ferrous metal will be fed into the Electric Arc Furnace (EAF). Steelmaking is accomplished using electrical energy, with a melting temperature within the EAF of approximately 3,000 °F. Furnace off-gases, also at 3,000 °F, will be captured by a direct evacuation control (DEC) system and used to pre-heat the scrap being brought to the furnace.

Additionally, a large canopy hood at roof level over the furnace will collect EAF emissions not captured by the DEC system as well as emissions from small incidental sources in the Melt Shop. All off-gases, either from the scrap pre-heating or the canopy hood, will be directed to a large fabric filtration baghouse before being released to the atmosphere. During the melting process, other raw materials will be added to the EAF to remove impurities from the steel. Once the molten steel reaches the desired conditions, it will be transferred to a large refractory-lined vessel known as a ladle, which will be transported to the Ladle Metallurgy Station (LMS).

At the LMS, the steel within the ladle will be subjected to additional heating by electrical energy to maintain its molten state and will be further refined by injection of raw materials. Once the molten steel reaches the desired temperature and chemistry, the ladle will be transported to a continuous caster, where the steel will be poured into a refractory-lined surge vessel called a tundish and subsequently into a water-cooled mold.

As the steel passes through the mold in the caster, it will be cooled and formed into a continuous square cross section-shaped strand. After casting, the continuous steel strand will be rolled to the desired shape, i.e., structural rebar, in a rolling mill. After rolling, the steel will be cooled, bundled, and stored. To produce some structural material such as angles and channels, the rebar will be unbundled and passed through a straightener roller process. The finished products will be shipped off-site by truck as needed for use by customers.

A low-density mixture of impurities called slag will be formed in the EAF and LMS during the melting and refining processes. The slag generated in these processes will be transferred to a processing area, where it will be air cooled, processed, and transported off-site by truck for sale to customers.

Ancillary sources that will be required to support the proposed operations and that will generate small quantities of emissions include the following:

- Manual torch cutting of scrap material
- Handling and storage of raw materials used in the EAF and LMS
- Handling and storage of lubrication products used in the caster mold
- Refractory replacement and refractory curing and drying using natural gas-fired dryers
- Handling and storage of raw materials used to rebuild and repair refractory
- Spent refractory handling and storage
- Ladle and tundish preheating using natural gas-fired preheaters

- Mill scale handling and storage
- Handling and storage of residual scrap/sweepings
- Cooling towers
- Roads

In the proposed steel mill, CMC will manufacture steel products from scrap steel. Iron ore will not be processed at the mill.

The following sections contain a detailed description of the processes proposed for the CMC mill.

**Scrap Material Storage and Handling**

Scrap steel for the CMC mill will be purchased from outside suppliers and transported to the facility by both trucks and rail. Scrap material to be received may include shredded scrap automobiles, used appliances, machinery, sheet metal, rectangular bundles, and miscellaneous scrap metal. Scrap materials will arrive in "pre-processed" form suitable for direct use in the steelmaking process.

Scrap material will primarily be stored: (1) inside a partially enclosed building in which scrap will be loaded to a conveyor for transport to the EAF, and (2) outdoors in piles for ultimate transport to the scrap storage building. Incoming trucks will enter one of several bays on the receiving side of the scrap material storage building. The trucks will dump their load of scrap onto the concrete floor. Cranes and mobile equipment will transport to the storage building scrap received by rail or stored in outdoor storage piles, will manage the piles of scrap within the building, and will load scrap onto the conveyor that feeds the EAF.

The outdoor scrap material storage piles will receive material when space within the scrap material storage building is inadequate. Trucks hauling scrap material will be able to dump their load adjacent to the outdoor piles. Cranes and mobile equipment will transport scrap received by rail to the outdoor piles and will manage material at the piles.

Relatively small amounts of PM emissions will be generated from scrap storage and handling from the following sources:

- Outdoor scrap handling and storage (Emission Unit Identification Number (EUN) SCRAPHNDLG and Emission Point Identification Number (EPN) SCRAPYARD)
- Scrap handling and storage at the Scrap Storage Building (EUN SCRAPBLDG and EPN SCRAPBLDG)
- Outdoor handling and storage of residual scrap and sweepings (EUN SWEEPHNDLG and EPN SCRAPYARD)
- Paved roads (EUN ROADS and EPN ROADS)
- Unpaved roads (EUN ROADS and EPN ROADS)

Additionally, a small fraction of the total scrap material received will require manual gas-fired torch cutting (EUN SCRAPCUT and EPN SCRAPCUT) to ensure its manageability. Relatively small amounts of emissions of PM and combustion products will be generated from torch cutting.

**Other Raw Material Storage and Handling**

Various raw materials will be purchased from outside vendors and stored and handled at the plant site prior to use in the steelmaking process. These materials include:

- Carbon to be used as a reductant in the steelmaking process
- Fluxing agents for the production of slag
- Alloys for refining steel metallurgy

The carbon will be transported by truck or rail to the site and will be pneumatically unloaded to an outdoor storage silo. The receiving hopper and silo will be controlled by bin vent filters to reduce PM emissions from material transfers. The carbon will be pneumatically transferred from the storage silo to the EAF and LMS as needed.

The fluxing agents will be transported to the site in trucks and will be pneumatically unloaded to outdoor storage silos. The receiving hopper and storage silos will be equipped with bin filters vents to reduce PM emissions from material transfers. The fluxing agents will be pneumatically transferred from the storage silos to the Melt Room of the Melt Shop building for use in the EAF and LMS as needed.

Alloys will be transported by truck to the facility in aggregate form and unloaded onto outdoor storage piles. The alloys will be transferred by front-end loaders to the Melt Room as needed for addition to ladles when transferring molten steel from the EAF and for addition to ladles at the LMS.

Relatively small amounts of PM emissions may be generated during raw material storage and handling from the following sources:

- Carbon handling and storage system (EUN CARBHNDLG and EPNs CARBHOPPER and CARBSILO1)
- Fluxing agent handling and storage system (EUN FLUXHNDLG and EPNs FLUXHOPPER, FLUXSILO1, and FLUXSILO2)
- Alloy aggregate handling and storage outside the Melt Shop building (EUN ALLOYHNDLG and EPN ALLOYPILES)
- Alloy aggregate handling and storage inside the Melt Room (EUN ALLOYMELT and EPN MELTBH)
- Paved roads (EUN ROADS and EPN ROADS)

**EAF Melting and Refining Operations**

To initiate the steelmaking process, scrap material will be placed into the EAF. The EAF will be designed to continuously receive scrap material using a conveyer system. The conveyer system will allow for continuous feeding of scrap material to the EAF without opening the roof of the furnace. During start-ups of the EAF, maintenance of the EAF scrap conveyor system, and other mechanical outages the loading of scrap will be accomplished using charge buckets, which are transported into position over the EAF using overhead cranes. Once a charge bucket is in position, the furnace roof will pivot to the side, and the scrap will be charged to the furnace.

Once charging is complete, the furnace roof will be re-positioned, and the furnace electrodes will be lowered. Electrical power will then be provided to increase the temperature of the entire charge of scrap to beyond the steel melting point of approximately 3,000 degrees Fahrenheit (°F).

During the melting process, fluxing agents will be used to remove impurities from the steel through the formation of slag. Oxygen and reducing agents will be injected to make the slag foam via the formation of $CO_2$. The low-density slag will provide insulation to reduce energy losses and improve energy transfer during the melting process.

After the first batch ("heat") of steel is melted, scrap for subsequent heats will be fed to the EAF using a conveyer. The conveyer system will allow the continuous feeding of scrap material to the EAF without opening the roof of the furnace.

Once the steel melting and refining in the EAF is complete, the contents of the furnace will be poured ("tapped") into a refractory-lined vessel known as a ladle, which will transport the molten steel to the LMS for further refining. A "heel" of molten steel will remain in the furnace after the furnace has been tapped in order to assist in the melting of the subsequent heat's scrap charges.

EAF emissions are generated during charging, melting and refining, and tapping. In general, when the furnace roof is closed, at least 99% of the EAF emissions will be captured by a direct evacuation control (DEC) system, which will be vented through a large diameter air-cooled duct to the Melt Shop baghouse (EPN MELTBH). When the furnace roof is open, all of the emissions will be captured by the building enclosure in combination with the canopy hood above the EAF, which will also be vented to the Melt Shop baghouse. Based on experience from other CMC mills currently in operation throughout the United States and on the proposed Melt Room ventilation design, 100% of the emissions generated by the EAF will be captured by either the DEC system or by the building enclosure/canopy hood configuration, which will then vent the emissions to the Melt Shop baghouse.

During EAF charging, PM, VOC, $CO_2$, and CO emissions will be generated by the volatilization and partial combustion of grease, oil, plastics, and paper attached to the scrap. Some PM emissions will be generated from the release of loose iron oxide (rust) particles on the scrap. Except for the cold starts that happen after maintenance events, usually once a week, all of the heats in the EAF will be charged with scrap with the DEC roof in place and therefore will exhaust charging emissions generated in the EAF directly to the Melt Shop baghouse. When the EAF will be charged using charge buckets all of the emissions generated will be captured by the building enclosure/canopy hood configuration, which will then direct the emissions to the Melt Shop baghouse.

Melting and refining emissions will include PM, CO, $NO_x$, $SO_2$, and small quantities of VOC. PM will be generated from the release of loose iron oxide (rust) particles on the scrap, condensation of volatilized lower-boiling metals, and incomplete combustion of carbon-containing materials charged to the furnace. CO will also be emitted as a result of incomplete combustion of carbon-bearing materials charged to the furnace and incomplete combustion of carbon in the furnace electrodes. $NO_x$ emissions will be formed within the EAF during melting as a result of the elevated temperatures within the EAF. During melting, $SO_2$ will be generated within the furnace due to oxidation of sulfur contained in the combustibles. VOCs not oxidized during charging of the furnace will be oxidized during melting. During melting and refining, the furnace roof is closed, and emissions will be controlled by the DEC system, which is vented through a large diameter air-cooled duct to the Melt Shop baghouse. Any emissions that may escape the DEC will be captured by the building enclosure/canopy hood configuration, which will route the emissions to the Melt Shop baghouse.

Emissions during EAF tapping operations will include smaller quantities of PM, CO, and $SO_2$. PM emissions will result from fumes generated by the molten steel and the addition of alloys while the steel is being tapped into a ladle. CO and $SO_2$ will form as a result of oxidation of a portion of the residual carbon and sulfur in the molten steel. All of the emissions from tapping will be captured by the building enclosure/canopy hood configuration, which will route the emissions to the Melt Shop baghouse.

EAF dust collected in the Melt Shop baghouse will be pneumatically transferred to a storage silo, which will be equipped with a bin vent filter (EPN DUSTSILO1) to minimize emissions from the transfer of dust. The dust will be loaded into trucks and/or railcars beneath the silo in a building enclosure in order to be transported to off-site recycling facilities. Small levels of PM emissions may escape the enclosure during the transfer of dust to trucks and/or railcars (EPN DUSTBLDG).

Emission points associated with the EAF (EUN EAF) will include the following:

- EAF operations (EUN EAF and EPN MELTBH)
- Handling, storage, and load-out of Melt Shop baghouse dust (EUN DUSTHNDLG and EPNs DUSTSILO1 and DUSTBLDG)

**LMS Refining Operations**

The EAF will be used primarily for melting scrap material and, to a lesser degree, for refining steel. Once the steel reaches the desired conditions, it will be tapped into a ladle to be transported to the LMS. At the LMS (EUN LMS), the ladle will be connected to a ladle furnace roof, which contains electrodes for further electrical heating. The injection of additional raw materials will also occur in the LMS.

LMS contaminants which may be emitted include PM, CO, $NO_x$, $SO_2$, VOC, and GHG. PM emissions will be generated primarily from iron oxides in steel and metal fumes. PM emissions from the LMS are expected to be lower than PM emissions from the EAF because the steel will already be in molten form and the low-vapor point metals will have already been volatilized. Additionally, some reduction of emissions will result from the filtering effect of the slag layer, which will float on the molten steel bath.

An air-cooled duct connected to the LMS roof will vent emissions from the LMS to the Melt Shop baghouse (EPN MELTBH). As with the EAF, all emissions generated in the LMS will be captured by either its DEC system or the building enclosure/canopy hood configuration, which will then direct emissions to the Melt Shop baghouse.

**Ladle Preheating and Ladle Repair/Rebuilding**

Ladles will be lined with refractory and preheated before being used. The ladle preparation area, which will be located in the Caster Room of the Melt Shop building, will consist of refractory dryers and preheaters. Both the dryers and preheaters will be natural-gas fired. Combustion emissions will be released during preheating and refractory drying of ladles.

Ladle refractory installation and its occasional repair and replacement may involve the use of organic binding agents, which can generate small quantities of CO, PM, and VOC emissions from pyrolysis of the binders. In addition, low-level PM emissions may be generated from the removal of spent refractory. Emissions from the ladle preheaters and ladle relining activities are all assumed to be released from the building uncaptured through the caster roof vent (EPN CASTERVENT).

Emission sources associated with ladle preheating and ladle refractory repair and rebuilding processes will include the following:

- Ladle preheating (EUN LADLEPHEAT and EPN CASTERVENT)
- Ladle refractory drying (EUNs LADLEDRYER and EPN CASTERVENT)
- Spent ladle refractory handling in the Caster Room (EUN REFRCCASTR and EPN CASTERVENT)
- Outdoor spent ladle refractory handling and storage (REFRCHNDLG and EPN SLAGYARD)
- Paved roads (EUN ROADS and EPN ROADS)
- Unpaved roads (EUN ROADS and EPN ROADS)

**Casting Operations**

Once the molten steel reaches the desired properties in the LMS, the ladle will be removed and transported by overhead crane to a continuous casting machine located in the Caster Room. In the Caster, steel will flow via a bottom slide gate from the ladle into another refractory-lined surge chamber called a tundish. From the tundish, the molten steel will flow into the lubricated molds. As the steel travels through the molds, it will be cooled and formed into a square cross-section ("billet") shape. As the steel exits the molds, it will be further cooled in a water spray chamber.

Relatively small quantities of emissions will result from the fuming of steel during its transfer from the ladle to the tundish and to the mold as well as the volatilization, pyrolysis, and combustion of mold oil. Most of these emissions exit the building uncaptured through the Caster Room roof vent (EPN CASTERVENT), with a smaller fraction exhausting through the spray chamber stack (EPN CASTSPRAY).

The tundish will be preheated using a natural gas-fired heater. Combustion emissions will be released during tundish preheating. In addition, the refractory lining of the tundish must be repaired and/or rebuilt occasionally. This may involve the use of organic binding agents, which may generate small quantities of CO, PM, and VOC emissions. In addition, low-level PM emissions may be generated from the removal of spent refractory. Emissions from the tundish preheating and tundish refractory repair/rebuilding will exit the building uncaptured through the Caster Room roof vent.

Emission sources associated with Caster and associated processes will include the following:

- Caster operations (EUN CASTER and EPNs CASTERVENT and CASTSPRAY)
- Tundish preheating (EUN TUNDPHEAT and EPN CASTERVENT)
- Tundish refractory drying (EUNs TUNDDRYER and TUNDMANDRY and EPN CASTERVENT)
- Spent tundish refractory handling in the Caster Room (EUN REFRCCASTR and EPN CASTERVENT)
- Outdoor spent tundish refractory handling and storage (REFRCHNDLG and EPN SLAGYARD)
- Paved roads (EUN ROADS and EPN ROADS)
- Unpaved roads (EUN ROADS and EPN ROADS)

**Rolling Operations**

After casting, the steel billets will be straightened and cooled gradually. An electric induction coil will be used to generate a uniform billet temperature prior to rolling. After rolling and forming, the finished product will be cooled in a cooling bed.

**Finishing Process**

The rolled steel is then cooled on a natural convection cooling bed, bundled and stored. To produce some structural material such as angles and channels, the rebar will be unbundled and passed through a straightener roller process. The finished products will be shipped off-site by truck as needed for use by customers.

**Slag Handling and Crushing**

Slag is formed as flux materials are added to the steel bath to remove impurities in both the EAF and LMS. The slag formed in the EAF tends to be larger in diameter and requires processing prior to resale as a usable aggregate product.

The molten slag formed in the EAF will be emptied into concrete- and slag-lined pits beneath the furnace for cooling. The slag will be subsequently removed from the pits using a front-end loader and transported to the slag processing area. In this area, the slag will initially be air cooled.

The much smaller volume of slag formed in the LMS will be emptied from the ladle after the LMS refining operation is complete. After cooling, the LMS slag will be transported to the slag processing area.

In the processing area, slag will be crushed and separated into various products. Processed slag products will be transported off-site by truck for sale to customers for use as road-base materials and other uses that may require aggregate products.

Emission sources associated with the slag handling, sorting, and crushing processes will include the following:

- Slag handling in the Melt Room (EUN SLAGMELT and EPN MELTBH)
- Slag cooling (EUN SLAGCOOLING and EPN SLAGYARD)
- Outdoor slag handling, processing, and storage after quenching (EUN SLAGPROCSS and EPN SLAGYARD)
- Paved roads (EUN ROADS and EPN ROADS)
- Unpaved roads (EUN ROADS and EPN ROADS).

**Cooling Towers**

Cooling towers (EPNs COOLTOWER1, COOLTOWER2, and COOLTOWER3, respectively) will be used to remove heat from the water used in various parts of the steelmaking process. A small amount of PM emissions may be generated from cooling tower drift losses.

**Emergency Reciprocating Internal Combustion Engines**

The site will operate three emergency engines, two to provide emergency electrical power (EPNs ENG-GEN1 and ENG-GEN2, respectively) and one to provide water pumping (EPN ENG-FWP1). With respect to conducting required periodic readiness testing and maintenance on the engines, CMC will comply with the restriction specified in 40 CFR Part 60, Subpart IIII for annual hours of non-emergency operation for new emergency engines.

**Diesel Fuel Storage Tanks**

The facility will include four diesel storage tanks, three for the emergency engines and a fourth for vehicle fueling. VOC emissions are less than 0.01 TPY.

**Quality Assurance**

The Quality Assurance operations will utilize laboratories for testing metallurgical properties of steel. Laboratory activities are "trivial activities."

**SECTION III. EQUIPMENT**

**EUG 01 Melt Shop and EUG 02 Ladle Metallurgy Station**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| EAF | MELTBH | Electric Arc Furnace (EAF) | 2016 |
| LMS | MELTBH | Ladle Metallurgy Station | 2016 |
| ALLOYMELT | MELTBH | Alloy handling in the Melt Room | 2016 |
| SLAGMELT | MELTBH | Slag handling in the Melt Room | 2016 |

**EUG 03 Gas-Fired Heaters and EUG 04 Continuous Caster**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| LADLEDRYER | CASTERVENT | Ladle Dryers | 2016 |
| LADLEPHEAT | CASTERVENT | Ladle Preheaters | 2016 |
| TUNDDRYER | CASTERVENT | Tundish Dryer | 2016 |
| TUNDMANDRY | CASTERVENT | Tundish Mandril Dryer | 2016 |
| TUNDPHEAT | CASTERVENT | Tundish Preheaters | 2016 |
| CASTER | CASTERVENT | Continuous Caster | 2016 |
| REFRCCASTR | CASTERVENT | Spent refractory handling in the Caster Room | 2016 |
| CASTER | CASTSPRAY | Continuous Caster | 2016 |

**EUG 05 Materials Storage & Handling**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| CARBNHNDLG | CARBHOPPER | Carbon handling/storage system | 2016 |
| CARBNHNDLG | CARBSILO1 | Carbon handling/storage system | 2016 |
| FLUXHNDLG | FLUXHOPPER | Fluxing agent handling/storage system | 2016 |
| FLUXHNDLG | FLUXSILO1 | Fluxing agent handling/storage system | 2016 |
| FLUXHNDLG | FLUXSILO2 | Fluxing agent handling/storage system | 2016 |

**EUG 06 Scrap Cutting**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| SCRAPCUT | SCRAPCUT | Torch cutting of Scrap | 2016 |

**EUG 07 Outdoor Material Handling**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ALLOYHNDLG | ALLOYPILES | Outdoor alloy handling/storage | 2016 |
| SLAGQCOOLING | SLAGYARD | Slag cooling/surge pile | 2016 |
| REFRCHNDLG | SLAGYARD | Outdoor spent refractory handling/storage | 2016 |
| SCALENHDLG | SCALEPILES | Outdoor mill scale handling/storage | 2016 |
| SWEEPHNDLG | SCRAPYARD | Outdoor residual scrap/sweepings handling | 2016 |
| SCRAPBLDG | SCRAPBLDG | Scrap handling at Scrap Storage Building | 2016 |
| SCRAPHNDLG | SCRAPYARD | Outdoor scrap handling in yard | 2016 |
| SLAGPROCSS | SLAGYARD | Outdoor slag handling/storage/processing | 2016 |
| DUSTHNDLG | DUSTBLDG | EAF baghouse dust handling/storage system | 2016 |

**EUG 08 Baghouse Dust Handling**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| DUSTHNDLG | DUSTSILO1 | EAF baghouse dust handling/storage system | 2016 |
| | | | |

**EUG 09 Emergency Generator**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ENG-GEN1 | ENG-GEN1 | Emergency Generator | 2016 |

**EUG 10 Emergency Generator**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ENG-GEN2 | ENG-GEN2 | Emergency Generator | 2016 |

**EUG 11 Firewater Pump Engine**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ENG-FWP1 | ENG-FWP1 | Fire pump Engine | 2016 |

**EUG 12 Roads**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ROADS | ROADS | Plant Roads | 2016 |

There are no tanks contemplated for liquid storage. The mold lubricant, etc., will be in drums and portable totes.

**EUG 13 Cooling Towers**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| COOLTOWER1 | COOLTOWER1 | Cooling Tower 1 | 2016 |
| COOLTOWER2 | COOLTOWER2 | Cooling Tower 2 | 2016 |
| COOLTOWER3 | COOLTOWER3 | Cooling Tower 2 | 2016 |

## SECTION IV. EMISSIONS

The applicant has requested that all emissions calculations be held confidential.

## SUMMARY OF EMISSIONS BY DISCHARGE POINT

| Point ID | $PM_{10}$ | | $PM_{2.5}$ | | NOx | | CO | | VOC | | $SO_2$ | | GHG | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY |
| MELTBH | 13.37 | 58.57 | 13.37 | 58.57 | 30.00 | 97.50 | 400.00 | 1,300.00 | 30.00 | 97.50 | 60.00 | 195.00 | -- | 173,810 |
| CASTERVENT | 2.08 | 7.93 | 2.08 | 7.92 | 3.90 | 17.04 | 5.24 | 22.22 | 1.32 | 5.38 | 0.27 | 1.10 | -- | 20,061 |
| CASTSPRAY | 0.26 | 1.06 | 0.26 | 1.06 | 0.02 | 0.07 | 0.39 | 1.59 | 0.26 | 1.05 | 0.06 | 0.25 | -- | 18 |
| SCRAPYARD | 0.08 | 0.31 | 0.01 | 0.047 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SCRAPBLDG | 0.02 | 0.04 | 0.01 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| ALLOYPILES | 0.01 | 0.01 | 0.01 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SCALEPILES | 0.02 | 0.02 | 0.01 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DUSTBLDG | 0.22 | 0.01 | 0.03 | 0.01 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FLUXSILO1 | 0.26 | 1.13 | 0.26 | 1.13 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FLUXSILO2 | 0.26 | 1.13 | 0.26 | 1.13 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| FLUXHOPPER | 0.07 | 0.30 | 0.07 | 0.30 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| CARBSILO1 | 0.18 | 0.77 | 0.18 | 0.77 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| CARBHOPPER | 0.14 | 0.60 | 0.14 | 0.60 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DUSTSILO1 | 0.11 | 0.49 | 0.11 | 0.49 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| ROADS | 0.73 | 0.64 | 0.11 | 0.12 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| COOLTOWER 1 | 0.08 | 0.36 | 0.08 | 0.36 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| COOLTOWER 2 | 0.11 | 0.48 | 0.11 | 0.48 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| COOLTOWER 3 | 0.11 | 0.48 | 0.11 | 0.48 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| SLAGYARD | 0.22 | 0.45 | 0.03 | 0.07 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| ENG-GEN1 | 0.10 | 0.01 | 0.10 | 0.01 | 1.84 | 0.09 | 1.73 | 0.09 | 0.13 | 0.01 | 0.01 | 0.01 | -- | 17 |
| ENG-GEN2 | 0.53 | 0.03 | 0.53 | 0.03 | 15.77 | 0.79 | 9.21 | 0.46 | 1.05 | 0.05 | 0.02 | 0.01 | -- | 92 |
| ENG-FWP1 | 0.06 | 0.01 | 0.06 | 0.01 | 0.74 | 0.04 | 0.99 | 0.05 | 0.05 | 0.01 | 0.01 | 0.01 | -- | 7 |
| SCRAPCUT | 0.20 | 0.20 | 0.20 | 0.20 | 0.06 | 0.12 | 0.03 | 0.06 | 0.01 | 0.01 | 0.01 | 0.01 | -- | -- |
| DSLTK | -- | -- | -- | -- | -- | -- | -- | -- | -- | 0.20 | -- | -- | -- | -- |
| **TOTALS** | **19.22** | **75.03** | **18.13** | **73.82** | **52.33** | **115.65** | **417.59** | **1,324.47** | **33.02** | **104.01** | **60.38** | **196.39** | **--** | **194,006** |

**Hazardous Air Pollutants**

Since steel is cast without sand molds, HAP emissions are minimal. HAP emissions result from the melting and casting PM emissions, and formaldehyde from the combustion units. Metal HAP emissions have been estimated at 0.47 TPY lead. Gas-fired heaters formaldehyde emissions will be 0.013 TPY. These are less than the major source threshold of 10 TPY of any one HAP.

**Greenhouse Gas Emissions**

Greenhouse gas (GHG) emissions were calculated using the factors of 40 CFR Part 98, Subpart C for stationary fuel combustion and Subpart Q for iron and steel production. Potential emissions are 194,006 TPY $CO_2e$.

## SECTION V. INSIGNIFICANT ACTIVITIES

Insignificant activities are listed in OAC 252:100-8, Appendix I. Insignificant activities identified and justified in the application are listed below.

- Space heaters, boilers, process heaters and emergency flares less than or equal to 5 MMBTU/hr heat input (commercial natural gas). The facility includes numerous gas-fired heaters which are smaller than 5 MMBTUH. However, since these units are subject to BACT, they will not be among the "insignificant activities."

- * Storage tanks with less than or equal to 10,000 gallons capacity that store volatile organic liquids with a true vapor pressure less than or equal to 1.0 psia at maximum storage temperature. The facility includes four diesel storage tanks and small portable "totes" for casting lube oil storage.

- Hand wiping and spraying of solvents from containers with less than or equal to 1 liter capacity used for spot cleaning and/or degreasing in ozone attainment areas. Spot cleaning is conducted as a part of routine maintenance and is considered a trivial activity and recordkeeping will not be required in the Specific Conditions.

- * Activities having the potential to emit no more than 5 TPY (actual emissions) of any criteria pollutant. None additional listed but may be used in the future.

## SECTION V. BEST AVAILABLE CONTROL TECHNOLOGY REVIEW

OAC 252:100-8-31 states that BACT "*means an emissions limitation (including a visible emissions standard) based on the maximum degree of reduction for each regulated NSR pollutant which would be emitted from any proposed major stationary source or major modification which the Director, on a case-by-case basis, taking into account energy, environmental, and economic impacts or other costs, determines is achievable for such source or modification….*"

A BACT analysis is required to assess the appropriate level of control for each new or physically modified emissions unit for each pollutant that exceeds the applicable PSD Significant Emissions Rate (SER). As shown in the following table, emissions of $NO_X$, CO, VOC, $SO_2$, GHG, and $PM_{10}$ / $PM_{2.5}$ exceed the applicable SER.

**Emissions Compared to PSD Significance Levels (Tons/Year)**

| Pollutant | Facility Emission Rates (TPY) | PSD Levels of Significance (TPY) | Subject to PSD Review? |
|---|---|---|---|
| CO | 1,324.47 | 100 | Yes |
| NOx | 115.65 | 40 | Yes |
| $SO_2$ | 196.35 | 40 | Yes |
| $PM_{10}$ | 75.03 | 15 | Yes |
| $PM_{2.5}$ | 73.82 | 10 | Yes |
| VOC | 104.01 | 40 | Yes |
| Lead | 0.47 | 0.6 | No |
| GHG ($CO_2e$) | 194,006 | 75,000 | Yes |

The U.S. EPA has stated its preference for a "top-down" approach for determining BACT and that is the methodology used for this permit review. After determining whether any New Source Performance Standard (NSPS) is applicable, the first step in this approach is to determine, for the emission unit in question, the available control technologies, including the most stringent control technology, for a similar or identical source or source category. If the proposed BACT is equivalent to the most stringent emission limit, no further analysis is necessary.

If the most stringent emission limit is not selected, further analyses are required. Once the most stringent emission control technology has been identified, its technical feasibility must be determined; this leads to the reason for the term "available" in Best Available Control Technology. A technology that is available and is applicable to the source under review is considered technically feasible. A control technology is considered available if it has reached the licensing and commercial sales stage of development. In general, a control option is considered applicable if it has been, or is soon to be, developed on the same or similar source type. If the control technology is feasible, that control is considered to be BACT unless economic, energy, or environmental impacts preclude its use. This process defines the "best" term in Best Available Control Technology. If any of the control technologies are technically infeasible for the emission unit in question, that control technology is eliminated from consideration.

The remaining control technologies are then ranked by effectiveness and evaluated based on energy, environmental, and economic impacts beginning with the most stringent remaining technology. If it can be shown that this level of control should not be selected based on energy, environmental, or economic impacts, then the next most stringent level of control is evaluated. This process continues until the BACT level under consideration cannot be eliminated by any energy, environmental, or economic concerns.

The five basic steps of a top-down BACT review are summarized as follows:

Step 1. Identify Available Control Technologies
Step 2. Eliminate Technically Infeasible Options
Step 3. Rank Remaining Control Technologies by Control Effectiveness
Step 4. Evaluate Most Effective Controls Based on Energy, Environmental, and Economic impacts
Step 5. Select BACT and Document the Selection as BACT

In addition, in accordance with EPA guidance, the BACT analysis will address emissions from startup and shutdown as they pertain to the proposed BACT limits. However, for the several emissions units, emissions during start-up and shutdown are lower than maximum operations.

Technologies and emissions limit data were identified by the applicant and by AQD through a review of EPA's RACT/BACT/LAER Clearinghouse (RBLC) as well as EPA's New Source Review (NSR) and Clean Air Technology Center (CATC) websites, recent state BACT determinations for similar facilities, and vendor-supplied information. Other sources of information include state agency contacts, recent articles, and contacts with vendors to help identify emission rates that have not yet been added to the RBLC.

The BACT analysis involving VOC, $SO_2$, CO, $PM_{10}$ / $PM_{2.5}$, GHG, and NOx will be performed using all emission sources. However, the BACT analysis will be abbreviated for units with low emission rates (e.g., ladle pre-heaters).

BACT determinations listed on the RBLC were fairly limited for the types of operations proposed. Most of the determinations listed emission rates but not control technologies. Since the potential controls for these operations are not "demonstrated," they cannot be required from a PSD BACT determination.

## A. Electric Arc Furnaces

### (1) $PM_{10}$ / $PM_{2.5}$

The entire facility emits a total of 78.03 TPY of total particulate matter (PM), of which the majority is generated by the EAF. BACT for the PM emissions from the melting of the steel in an EAF involve two basic parts i.e., capture of the fugitives and control of the primary emissions.

The facility proposes baghouses to achieve 0.0024 gr/DSCF PM emissions, total (filterable plus condensable). The applicant has stated that the lower PM emissions as shown on RBLC (0.0017 gr/DSCF) are filterable PM only, results as would be generated by the testing as required by NSPS for EAFs.

The following emissions control technologies have been identified for $PM_{10}$ / $PM_{2.5}$:

| Control Technology | Control Efficiency Range | Average Control Efficiency |
|---|---|---|
| Fabric Filters | 99 – 99.9% | 99.5% |
| Dry Electrostatic Precipitator | 99 – 99.9% | 99.5% |
| Wet Electrostatic Precipitator | 99 – 99.9% | 99.5% |
| Incinerator | 70 – 99.9% | 85% |
| Cyclone | 70 – 99% | 85% |
| Wet Gas Scrubber | 50 – 99% | 75% |

The efficiency of the controls depends on the nature of the material being emitted. For an incinerator to achieve a reduction in PM, the PM must be combustible. (Running a metallic fume through a combustion unit would change metals into metal oxides, increasing emissions rather than decreasing them.) Electrostatic precipitators work best on high-resistivity PM. Inertial separators such as cyclones and wet scrubbers work best on large-diameter particles but have only modest efficiencies on smaller (5 micron and below) PM.

NSPS Subpart AAa mandates control to at least 0.0052 gr/DSCF, while recent PSD permits are in the range of 0.0017 to 0.0032 gr/DSCF. The proposed level of control is approximately 99.7% reduction from uncontrolled emissions.

BACT for $PM_{10}$ / $PM_{2.5}$ emissions from the EAF is selected as baghouses controlling PM / $PM_{10}$ / $PM_{2.5}$ to 0.0024 gr/DSCF (filterable plus condensable).

**(2) CO**

Carbon monoxide emissions are generated in an EAF process by three ways:

(1) Incomplete combustion of organic contaminant materials on the surfaces of the furnace steel feed stock which is driven off by the heat of the preheating and melting process.
(2) Oxygen combining with the carbon from the degeneration of the furnace electric carbon rods.
(3) Metallurgical reaction of the carbon and oxygen in the molten steel itself.

The facility proposes a CO emission limit of 4.0 lb/ton as BACT. This is somewhat higher than limitations shown on RBLC due to the preheating process. When hot gases from the furnace (operated at 3,000$^{o}$F) contacts residual organic material on the scrap being charged to the furnace, oxidation of the organic residue occurs. When temperatures fall below 1,300$^{o}$F (the ignition temperature of CO), the oxidation is incomplete and CO is emitted. High CO emissions are being traded for energy efficiency.

**Summary of RBLC Listings – PM (TSP and FPM) Emissions**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| TX-0651 | Nucor | Steel Mill | TX | 10/20/14 | EAF | 316 TPH, 1,500,000 TPY | 0.0032 gr/DSCF | Enclosure, capture, fabric filters |
| | | | | | Ladle Furnace | 316 TPH, 1,500,000 TPY | 0.0052 gr/DSCF | Enclosure, capture, fabric filters |
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | EAF, LMF | 130 TPH | 0.1 lb/ton steel | DEC, hood, and baghouse |
| | | | | | Caster | 130 TPH | | Permanent ladle cover, tapping ladles from the bottom, use of an enclosed tundish, and pipeline-quality natural gas in cutting torches |
| OH-0350 | Republic Steel | Lorain | OH | 7/18/12 | EAF | 150 TPH | 0.0034 gr/DSCF | DEC with adjustable air gap and water-cooled elbow and duct |
| CO-0066 | CF&I Steel (Rocky Mountain Steel) | Pueblo | CO | 11/30/11 | EAF | 185 TPH | 0.0018 gr/DSCF | baghouse |
| GA-0142 | Osceola Steel | Cook | GA | 12/29/10 | EAF | 153 TPH | 0.0018 gr/DSCF, 0.0008 gr/DSCF condensable. Total 0.0052 gr/DSCF | Fabric filter |
| OH-0339 | The Timken Company | Harrison (Stark, OH) | OH | 12/29/10 | EAF | 400,000 TPY | 0.0003 gr/DSCF* | baghouse |

*The application states that this is filterable PM only, not filterable plus condensable.

**Summary of RBLC Listings – PM (TSP and FPM) Emissions - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| OH-0342 | The Timken Company | Faircrest Steel (Stark, OH) | OH | 12/29/10 | EAF | 1,300,000 TPY | 0.0017 gr/DSCF | Roof canopy hood fume collection with DEC to baghouse |
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | EAF (continuous casting and 6 preheaters) | 1,800 TPD | 0.0052 gr/DSCF | Building enclosure with a canopy hood / baghouse system capable of achieving 100% capture of meltshop emissions |
| IN-0138 | Steel Dynamics Inc. Engineered Bar | Hedricks | IN | 3/13/10 | EAF and LMS | 125 TPH | 0.0052 gr/DSCF* | Baghouse |
| IN-0140 | Nucor Steel | Montgomery | IN | 2/8/10 | Meltshop 2 EAFs, 2 continuous casters, desulfurization station, ladle dryer, ladle preheater, one argon oxygen decarburization vessel, three LMFs | 502 TPH | 0.0052 gr/DSCF | Baghouses |
| | | | | | Strip caster line (LMS, Tundish and continuous strip caster) | 270 TPH | 0.0052 gr/DSCF | baghouses |

*The application states that this is filterable PM only, not filterable plus condensable.

**Summary of RBLC Listings – PM (FPM2.5) Emissions**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| TX-0651 | Nucor | Steel Mill | TX | 10/20/14 | EAF | 316 TPH, 1,500,000 TPY | 0.0032 gr/DSCF | Enclosure, capture, fabric filter |
| | | | | | Ladle Furnace | 316 TPH, 1,500,000 TPY | | Enclosure, capture, fabric filter |
| OH-0350 | Republic Steel | Lorain | OH | 7/18/12 | EAF | 150 TPH | 0.0033 gr/DSCF | DEC with adjustable air gap and water cooled elbow and duct to baghouse |
| OH-0342 | The Timken Company | Faircrest Steel (Stark, OH) | OH | 12/29/10 | EAF | 1,300,000 TPY | 0.0009 gr/DSCF* | Roof canopy hood fume collection with DEC to baghouse |
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | EAF (continuous casting and 6 preheaters) | 1,800 TPD | 0.0049 gr/DSCF | Building enclosure with a canopy hood / baghouse system capable of achieving 100% capture of meltshop emissions |

*The application states that this is filterable PM only, not filterable plus condensable.

**Summary of RBLC Listings – CO Emissions**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| TX-0651 | Nucor | Steel Mill | TX | 10/20/14 | EAF | 316 TPH, 1,500,000 TPY | 2.27 lb/ton steel | good combustion practices |
| | | | | | Ladle Furnace | 316 TPH, 1,500,000 TPY | 0.174 lb/ton steel | good combustion practices |
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | EAF, LMF | 130 TPH | 2.0 lb/ton steel | DEC and co-reaction chamber |
| | | | | | Caster | 130 TPH | Not stated | Oxy-fuel burners for torches, good combustion practices, pipeline-quality natural gas |
| | | | | | Walking Beam Billet Reheat Furnace | 260.7 MMBTUH | | Controls were evaluated but all were found to be not cost effective |
| | | | | | Sidegate Heater | | | good combustion practices, pipeline-quality natural gas |
| OH-0350 | Republic Steel | Lorain | OH | 7/18/12 | Steam boiler | 65 MMBTUH | 0.04 lb/MMBTU | Proper burner design and good combustion practices |
| | | | | | EAF | 150 TPH | 2.0 lb/ton steel | DEC with adjustable air gap and water-cooled elbow and duct |
| CO-0066 | CF&I Steel (Rocky Mountain Steel) | Pueblo | CO | 11/30/11 | EAF | 185 TPH | 2.0 lb/ton steel (30-day avg) | Use of process controls |

**Summary of RBLC Listings – CO Emissions - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| GA-0142 | Osceola Steel | Cook | GA | 12/29/10 | Reheat Furnace | 75 MMBTUH | 0.0035 lb/MMBTU | Good combustion / operating practices |
| | | | | | EAF | 153 TPH | 2.0 lb/ton steel (3-hr) | DEC, scrap management program, oxy-burners, oxygen lancing, increased water-cooled duct length, dampers and actuators |
| OH-0339 | The Timken Company | Harrison (Stark, OH) | OH | 12/29/10 | EAF | 400,000 TPY | 4.8 lb/ton steel | |
| OH-0342 | The Timken Company | Faircrest Steel (Stark, OH) | OH | 12/29/10 | EAF | 1,300,000 TPY | 3.5 lb/ton steel | DEC with adjustable air gap, elbow and water cooled ductwork for enhanced burnout of CO |
| | | | | | Continuous Caster | 30 MMBTUH | 84.0 lb/MMSCF natural gas | |
| | | | | | Soaking Pit | 20 MMBTUH | 84.0 lb/MMSCF natural gas | |
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | EAF (continuous casting and 6 preheaters) | 1,800 TPD | 2.23 lb/ton steel | Combined meltshop emissions, DEC system to capture CO which is oxidized at air gap between DEC and DEC elbow |
| | | | | | Reheat furnace for steel billet | 184 MMBTUH | Mass limits only | |

**Summary of RBLC Listings – CO Emissions - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IN-0138 | Steel Dynamics Inc. Engineered Bar | Hedricks | IN | 3/13/10 | EAF and LMS | 125 TPH | Mass limits only, common EAF / LMS baghouse | 4th hole duct or DEC |
| NC-0116 | Gerdau Ameristeel US | Charlotte | NC | 4/23/08 | EAF | | 4.4 lb/ton steel | |

The potential emissions control technologies are listed following as they were stated in the permit application. They are shown primarily for ranking of control efficiencies.

| Control Technology | Control Efficiency Range | Average Control Efficiency |
|---|---|---|
| Thermal oxidation | Up to 99.99% | Up to 99.99% |
| Catalytic oxidation | Up to 99.99% | Up to 99.99% |
| "Good combustion practices" | >99% | >99% |
| Direct evaluation control (DEC) | >99% | >99% |

The process itself cannot be altered to reduce CO formation except by utilizing pre-cleaned scrap, and such is already required by NESHAP Subpart YYYYY. The design of the DEC system has built-in CO emission control. There is air intake into the EAF furnaces, resulting in the CO being mixed with air in the vicinity of molten steel; the mix should be well above the autoignition temperature of CO of 1,300$^{o}$F.

The second step in a BACT analysis is elimination of infeasible options. Direct thermal oxidation would be accomplished by raising the temperature of the exhausts above 1,300$^{o}$F. Once the CO-to-$CO_2$ reaction has commenced, the exhaust temperature must then be cooled considerably to prevent damage to downstream PM controls; alternatively, the heating could be conducted following PM controls with a larger fuel penalty and increased combustion emissions. Regenerative or recuperative oxidizers are designed to recover a significant amount of heat for pre-heating gas streams, but again, these must be placed down stream of PM controls or the high PM concentrations will collect on the heat recovery media, a process known as "glazing." Catalytic oxidation can be conducted at lower temperatures, requiring less fuel, but the gas stream must be after PM controls or the PM will coat the catalyst, blocking the control reactions.

The only remaining technology is direct evacuation control. By reducing the amount of air entering the furnace, the operating temperature is kept high, and CO is oxidized in the vicinity of the EAF.

A check of EPA's RBLC shows that none of these add-on controls has been required for EAFs in the past 5 years. Therefore, they cannot be considered to be "demonstrated" technologies. That leaves only DEC and "good combustion".

The DEC system is selected as BACT for CO emissions from the EAF to a level of 4.0 lb/ton.

**Summary of RBLC Listings – NOx Emissions From EAF**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| TX-0651 | Nucor | Steel Mill | TX | 10/20/14 | EAF | 316 TPH, 1,500,000 TPY | 0.9 lb/ton steel | Oxy-fired burners |
| | | | | | Ladle Furnace | 316 TPH, 1,500,000 TPY | 0.548 lb/ton steel | good combustion practices |
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | EAF, LMF | 130 TPH | 0.2 lb/ton steel | Process optimization (combustion controls) and oxy-fuel burners |
| | | | | | Caster | 130 TPH | Not stated | Oxy-fuel burners for torches, good combustion practices |
| | | | | | Walking Beam Billet Reheat Furnace | 260.7 MMBTUH | 0.07 lb/MMBTU | Oxy-fuel burners for torches, good combustion practices |
| | | | | | Sidegate Heater | | | good combustion practices, pipeline-quality natural gas |
| OH-0350 | Republic Steel | Lorain | OH | 7/18/12 | Steam boiler | 65 MMBTUH | 0.07 lb/MMBTU | |
| | | | | | EAF | 150 TPH | 0.5 lb/ton steel | |
| CO-0066 | CF&I Steel (Rocky Mountain Steel) | Pueblo | CO | 11/30/11 | EAF | 185 TPH | 0.28 lb/ton steel | Use of process controls |

**Summary of RBLC Listings – NOx Emissions From EAF – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| GA-0142 | Osceola Steel | Cook | GA | 12/29/10 | EAF | 153 TPH | 0.35 lb/ton steel (3-hr) | Low- NOx burners with FGR technology and good combustion/ operating practices |
| OH-0339 | The Timken Company | Harrison (Stark, OH) | OH | 12/29/10 | EAF | 400,000 TPY | 0.2 lb/ton steel | |
| OH-0342 | The Timken Company | Faircrest Steel (Stark, OH) | OH | 12/29/10 | EAF | 1,300,000 TPY | 0.2 lb/ton steel | |
| | | | | | Continuous Caster | 30 MMBTUH | 63.0 lb/MMSCF natural gas | Low-NOx burners |
| | | | | | Soaking Pit | 20 MMBTUH | 63.0 lb/MMSCF natural gas | Low-NOx burners |
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | EAF (continuous casting and 6 preheaters) | 1,800 TPD | 0.43 lb/ton steel | Combined meltshop emissions |
| | | | | | Reheat furnace for steel billet | 184 MMBTUH | Mass limits only | Low-NOx burners |
| IN-0138 | Steel Dynamics Inc. Engineered Bar | Hedricks | IN | 3/13/10 | Pre-heaters / dryers | | 0.1 lb/MMBTU | Low-NOx burners |

**(3) NOx**

The application proposes oxy-firing as BACT for NOx to a level of 0.3 lb/ton of steel melted. This level is somewhat higher than the lowest NOx level shown on RBLC for electric arc furnaces but the proposed BACT level has been demonstrated by stack testing on a similar mill, whereas a demonstration is not readily available that the 0.2 lb/ton has actually been met in practice.

The USEPA document "Alternative Control Techniques Document – NOx emissions from Iron and Steel Mills" (EPA 453/R-94-065) states:

> "The use of electricity to melt steel scrap in an electric arc furnace transfers NOx generation from the steel mill to a utility power plant [which supplies the electricity to the mill]. There is no information that NOx emissions controls have been installed on EAFs or that suitable controls are available."

The potential emissions control technologies are listed following as they were stated in the permit application. They are shown primarily for ranking of control efficiencies.

| **Control Technology** | **Control Efficiency Range** | **Average Control Efficiency** |
|---|---|---|
| Selective catalytic reduction (SCR) | Up to 100% | 70-90% |
| Selective non-catalytic reduction (SNCR) | Up to 75% in selected short-term operations | 30-50% for large applications by less than 40% typical |
| Oxy-fired burners | No data | No data |
| "Good combustion practices" | <75% | <75% |

None of these technologies have been identified in EPA's RBLC as having been implemented in the United States. While flue gas treatment techniques have been used for NOx reduction at fossil fuel fired equipment, they have never been applied to EAF off-gases due to the wide temperature fluctuation, and the high particulate and metals content of the off-gas.

All emissions levels are in the range of 0.2 to 0.9 lb/ton. The proposed BACT level, 0.3 lb/ton, is at the low end of the national range.

Newer designed EAFs incorporate oxy-fuel burners. This design has dual results for NOx emissions controls. First, by eliminating most of the nitrogen in the exhaust stream, less fuel must be wasted on heating exhausts rather than heating steel. And since the formation of NOx depends on finite nitrogen concentrations in conjunction with oxygen concentrations, the technology reduces NOx emissions by reducing nitrogen concentrations in the furnaces.

Since no feasible add-on controls are shown by EPA, and no process modifications are listed, BACT is selected as oxy-firing to achieve NOx emissions of 0.3 lb/ton.

**(4) $SO_2$**

The facility proposes an $SO_2$ emission limit of 0.6 lb/ton as BACT. The proposed limit is somewhat higher than the lowest BACT determinations on RBLC but still equal to or lower than two BACT determinations approved in Region VI in the past five years.

Sulfur enters the process as a component of the scrap, as part of the scrap contaminants (grease, oil, etc.), and in the carbon used to treat the steel. As lower-grade ores are used in primary steel making, the amount of residual sulfur in scrap is gradually increasing. Similarly, the carbon used to treat steel is largely petroleum coke; as higher-sulfur crude oils are processed, the sulfur concentration of commercially-available coke is also increasing and low-sulfur coke is becoming unavailable on the market. Treatment of the molten steel with lime (CaO) or magnesite (MgO) liberates most sulfur from the steel as calcium and magnesium sulfides, which become a component of the slag floating on top of the molten steel. Although approximately 90% of the sulfur remains in the slag, the balance becomes $SO_2$ emissions.

The application identified two potential methods for reducing $SO_2$ emissions. Both are "tailpipe" controls. There do not appear to be any practical methods of reducing the amount of $SO_2$ generated as will be discussed later.

| Control Technology | Control Efficiency Range | Average Control Efficiency |
|---|---|---|
| Wet gas scrubber | 50 – 98% | 90% |
| Flue gas desulfurization | 50 – 90% | 80% |

The efficiency of $SO_2$ controls is dependent on the concentrations entering the control device; higher concentrations result in higher control efficiencies, while lower concentrations result in lower control efficiencies. With an $SO_2$ emission rate of 60 lb/hr and a stack flow of 640,000 DSCFM, the concentration of $SO_2$ will be approximately 9 ppm. $SO_2$ concentrations in the exhausts from the EAFs are already somewhat lower than the "cleaned" discharges from coal-fired power plants, therefore, the ability to achieve additional reductions has not been demonstrated.

Wet gas scrubbing uses either packed bed contactors or spray chambers. The liquid normally includes a caustic reagent, but the system captures PM which is mostly caustic metal oxides. There are no BACT determinations on RBLC for add-on controls on an EAF.

There is no practical way of ensuring that the sulfur content of scrap is at or below any specified level until that scrap is actually melted. At that point, lower-grade scrap requires more flux (lime or magnesite) to clean, and the same activities which enhance the quality of the steel by sulfur removal also prevent $SO_2$ emissions. Although scrap management is part of normal operations, it is difficult to specify as an air emissions control technology.

**Summary of RBLC Listings – $SO_2$ Emissions**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| TX-0651 | Nucor | Steel Mill | TX | 10/20/14 | EAF | 316 TPH, 1,500,000 TPY | 1.76 lb/ton steel | Good process operation and scrap management |
| | | | | | Ladle Furnace | 316 TPH, 1,500,000 TPY | 1.41 lb/ton steel | Good process operation and scrap management |
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | EAF, LMF | 130 TPH | 0.2 lb/ton steel | DEC and co-reaction chamber |
| | | | | | Caster | 130 TPH | | pipeline-quality natural gas for the caster |
| | | | | | Walking Beam Billet Reheat Furnace | 260.7 MMBTUH | | pipeline-quality natural gas for the caster |
| | | | | | Sidegate Heater | | | good combustion practices, pipeline-quality natural gas |
| OH-0350 | Republic Steel | Lorain | OH | 7/18/12 | EAF | 150 TPH | 0.039 lb/ton steel | |
| CO-0066 | CF&I Steel (Rocky Mountain Steel) | Pueblo | CO | 11/30/11 | EAF | 185 TPH | 0.15 lb/ton steel (30-day avg) | Use of process controls |

**Summary of RBLC Listings – $SO_2$ Emissions - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| GA-0142 | Osceola Steel | Cook | GA | 12/29/10 | Reheat Furnace | 75 MMBTUH | 0.0006 lb/MMBTU | Firing only natural gas |
| | | | | | EAF | 153 TPH | 0.018 lb/ton steel | Firing natural gas only, charge material selection (use of low-sulfur containing feed material. Required to use low-sulfur, carbon based feed and charge materials containing less than 2.5% sulfur by weight |
| OH-0339 | The Timken Company | Harrison (Stark, OH) | OH | 12/29/10 | EAF | 400,000 TPY | 0.44 lb/ton steel with tire burning, 0.07 lb/ton steel without tire burning | |
| OH-0342 | The Timken Company | Faircrest Steel (Stark, OH) | OH | 12/29/10 | EAF | 1,300,000 TPY | 0.5 lb/ton steel with tire burning, 0.15 lb/ton steel without tire burning | DEC with adjustable air gap, elbow and water cooled ductwork for enhanced burnout of CO |
| | | | | | Continuous Caster | 30 MMBTUH | | |
| | | | | | Soaking Pit | 20 MMBTUH | | |

**Summary of RBLC Listings – $SO_2$ Emissions - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | EAF (continuous casting and 6 preheaters) | 1,800 TPD | 0.5 lb/ton steel | Combined meltshop emissions, use of natural gas for continuous casting operations and ladle and tundish preheaters |
| | | | | | Reheat furnace for steel billet | 184 MMBTUH | 0.0006 lb/MMBTU | |
| IN-0138 | Steel Dynamics Inc. Engineered Bar | Hedricks | IN | 3/13/10 | EAF and LMS | 125 TPH | | |
| IN-0140 | Nucor Steel | Montgomery | IN | 2/8/10 | Meltshop 2 EAFs, 2 continuous casters, desulfurization station, ladle dryer, ladle preheater, one argon oxygen decarburization vessel, three LMFs | 270 TPH | 0.33 lb/ton steel (3-hr) | |
| Not stated | TPCP America | San Patricio | TX | 4/10/2010 | EAF | 149 TPH | 0.6 lb/ton | No add-on controls |
| Not stated | ArcelorMitall Vinton | El Paso | TX | 8/20/2010 | EAF | 48 TPH | 0.66 lb/ton | No add-on controls |

Low-sulfur petroleum coke is currently available from a single petroleum refinery in California at a premium price. Some eastern and Chinese anthracite coals can be used, also at a premium price. In either case, the added cost is approximately $70 per ton of coke to achieve an estimated $SO_2$ emission reduction of 0.05 lbs $SO_2$ per ton of steel, or approximately $28,000 per ton of $SO_2$ controlled. While the control appears technologically feasible, its result is limited and costs are excessive.

The proposed BACT limit for $SO_2$ of 0.6 lb/ton is consistent with other determinations nationally, including for Region VI, and is selected as BACT.

**(5) VOC**

The proposed BACT limit is 0.3 lb/ton VOC. This is somewhat higher than limitations shown on RBLC due to the preheating process. When hot gases from the furnace contacts residual organic material on the scrap being charged to the furnace, most of the residual organic material which is not oxidized would be evaporated. Higher VOC emissions are being traded for energy efficiency.

The potential emissions control technologies are listed following as they were stated in the permit application. They are shown primarily for ranking of control efficiencies.

| Control Technology | Control Efficiency Range | Average Control Efficiency |
|---|---|---|
| Thermal oxidation | Up to 99.99% | Up to 99.99% |
| Catalytic oxidation | Up to 99.99% | Up to 99.99% |
| Carbon adsorption | Up to 99.99% | Up to 99.99% |
| Biofiltration | 90-95% | Degrades over time to below 90% |
| Condensation | >90% | >90% |
| Good combustion and/or process controls | Up to 95% | >90% |
| Scrap management plan | 50-100% | 75% |

The efficiencies of VOC controls depends on the inlet temperatures, gas flow rates, inlet concentrations, and which VOC species are being controlled (heavier hydrocarbons condense more readily than lighter hydrocarbons.)

Similarly to the BACT analysis for CO, add-on controls could include thermal or catalytic oxidation. However, these controls are rejected on the same grounds: they have not been demonstrated for this type of industry and have a significant likelihood of failure. Similarly, carbon adsorption, biofiltration, and condensation are impractical for high-temperature exhausts, which would explain their absence from RBLC.

The “scrap management plan” involves rejection of any closed container (drums, canisters, tanks, etc). and any used oil filters unless pre-crushed and drained.

The proposed VOC limit is of 0.3 lb/ton is selected as BACT given the pre-heating system.

**Summary of RBLC Listings – VOC Emissions**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| TX-0651 | Nucor | Steel Mill | TX | 10/20/14 | EAF | 316 TPH, 1,500,000 TPY | 0.43 lb/ton steel | good combustion practices and process control |
| | | | | | Ladle Furnace | 316 TPH, 1,500,000 TPY | 0.004 lb/ton steel | good combustion practices and process control |
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | EAF, LMF | 130 TPH | 0.13 lb/ton steel | DEC and co-reaction chamber plus scrap management plan |
| | | | | | Caster | 130 TPH | Not stated | good combustion practices, pipeline-quality natural gas |
| | | | | | Walking Beam Billet Reheat Furnace | 260.7 MMBTUH | | Controls were evaluated but all were found to be not cost effective |
| | | | | | Sidegate Heater | | | good combustion practices, pipeline-quality natural gas |
| OH-0350 | Republic Steel | Lorain | OH | 7/18/12 | Steam boiler | 65 MMBTUH | | Proper burner design and good combustion practices |
| | | | | | EAF | 150 TPH | 0.1 lb/ton steel | Scrap management and DEC with adjustable air gap and water-cooled elbow and duct |
| CO-0066 | CF&I Steel (Rocky Mountain Steel) | Pueblo | CO | 11/30/11 | EAF | 185 TPH | 0.13 lb/ton steel | Portion of oil scrap (borings, turnings, properly-drained used oil filters, etc.) charged in each batch shall not exceed 3% of the total scrap. |

**Summary of RBLC Listings – VOC Emissions – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| GA-0142 | Osceola Steel | Cook | GA | 12/29/10 | Reheat Furnace | 75 MMBTUH | | |
| | | | | | EAF | 153 TPH | | |
| OH-0339 | The Timken Company | Harrison (Stark, OH) | OH | 12/29/10 | EAF | 400,000 TPY | 0.37 lb/ton steel | |
| OH-0342 | The Timken Company | Faircrest Steel (Stark, OH) | OH | 12/29/10 | EAF | 1,300,000 TPY | 0.17 lb/ton steel | DEC with adjustable air gap, elbow and water cooled ductwork for enhanced burnout of VOC |
| | | | | | Continuous Caster | 30 MMBTUH | 0.0055 lb/MMSCF natural gas | |
| | | | | | Soaking Pit | 20 MMBTUH | 0.0055 lb/MMSCF natural gas | |
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | EAF (continuous casting and 6 preheaters) | 1,800 TPD | 0.13 lb/ton steel | Scrap management plan |
| | | | | | Reheat furnace for steel billet | 184 MMBTUH | 0.0054 lb/MMBTU | |

**Summary of RBLC Listings – VOC Emissions – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IN-0138 | Steel Dynamics Inc. Engineered Bar | Hedricks | IN | 3/13/10 | EAF and LMS | 125 TPH | | |
| IN-0140 | Nucor Steel | Montgomery | IN | 2/8/10 | Meltshop 2 EAFs, 2 continuous casters, desulfurization station, ladle dryer, ladle preheater, one argon oxygen decarburization vessel, three LMFs | 270 TPH | 0.33 lb/ton steel (3-hr) | |
| | | | | | Strip caster line (LMS, Tundish, and continuous strip caster | 270 TPH | | |
| | | | | | Galvanizing line burners | 1.622 MMBTUH | | |

**(6) Greenhouse Gases**

The proposed BACT limit is 535 lb/ton $CO_2e$. The application identified numerous potential GHG emissions control technologies:

Approximately 90% of the $CO_2e$ emissions are from the EAF, therefore, the BACT analysis will focus on the EAF. The following GHG reduction techniques were identified in the application:

- Scrap preheating by Consteel process: this uses a conveyor through a tunnel where waste heat from the EAF is transferred to feed.
- DC arc furnace: this process replaces the standard three electrodes with one large electrode that uses direct current instead of alternating current. There is approximately a 5% saving of electricity usage compared to conventional EAF design.
- CONTIARC furnace: this design uses a continuous feed of scrap, which is preheated by hot gases coming out of the EAF.
- Twin-Shell Furnace with Scrap Heating (CONARC): this design uses two EAF vessels with a common arc and power supply. In the two furnace shells, blowing lances and electrodes are used in turns.
- $CO_2$ capture and storage (CCS): this method uses an amine contactor to remove $CO_2$ from the EAF gas stream for injection into geologic reservoirs or for other uses. This technology is dependent on local availability of geologic reservoirs to receive the $CO_2$.

Step 2 in the BACT evaluation process is elimination of technically infeasible options:

- DC arc furnace: this technique is employed only on the larger furnaces, 110 TPH and larger. It has not been installed on furnaces of comparable size to the EAF planned.
- CONTIARC process: this method is also demonstrated only on larger furnaces than the EAF proposed, and cannot be used in processes where slag removal is required.
- Twin-shell furnace with scrap heating (CONARC): the extra capital cost of this system results in it being used only in facilities with expected throughputs of 1 million tons or more of steel annually.
- Shaft furnace with scrap heating: batch-type preheaters recover energy from hot gases rising off the EAF. However, the gases tend to react with the scrap, yielding CO at explosive concentrations. This preheating method is being abandoned by the industry.
- Carbon capture and storage (CCS): this option would require an enormous amine unit capable of processing 640,000 DSCFM, and would require nearby geologic reservoirs for injection. The amine unit would also have significant VOC and condensable PM emissions. The necessary disposal location has not been shown to be available.

There is only one PSD permit on RBLC for GHG emissions. The RBLC summary mentions “energy efficiency” but does not state exactly how this energy efficiency is accomplished.

**Summary of RBLC Listings – GHG Emissions**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | EAF, LMF | 130 TPH | 320 lb ton steel | Energy efficiency plan for meltshop |
| | | | | | Caster | 130 TPH | | Energy efficiency practices, energy efficiency management plan |
| | | | | | Walking Beam Billet Reheat Furnace | 260.7 MMBTUH | 119 lb/MMBTU | Energy efficiency practices, energy efficiency management plan |
| | | | | | Sidegate Heater | | | Energy efficiency practices, energy efficiency management plan |

The remaining items are all planned for the facility. These items reduce operating costs as well as increase energy efficiency. BACT for GHG is selected as the following techniques and a limitation of 535 lb $CO_2e$ per ton of steel cast:

- Scrap preheating
- Use of continuous billet rolling

**B. Gas-Fired Heaters**

Numerous gas-fired heaters will be installed. The application requested that the sizes all be kept confidential.

There is only one recent BACT determination nationally for small gas-fired heaters in the size range planned for this facility: the Steel Dynamics facility at Hedrick, Indiana, issued on March 12, 2010. That determination showed NOx of 0.1 lb/MMBTU, which equals the proposed NOx limit for the proposed Durant facility.

**(1) $PM_{10}$**

Given the low emission rate (0.0076 lb/MMBTU) and high flows, PM control costs are expected to be exorbitant. For the heaters, use of natural gas fuel with PM emissions of 0.0076 lb/MMBTU is selected as BACT for PM.

**(2) CO**

The application proposes BACT for CO as a limit of 0.084 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

No add-on controls are deemed to be demonstrated for this type of operation. Further, since total CO emission from these operations are estimated at 14.3 TPY, or 1.1% of total facility emissions, no emission control system could have any significant reduction.

BACT is selected as natural gas fuel with CO of 0.084 lb/MMBTU.

**(3) NOx**

The application proposes BACT for NOx as a limit of 0.10 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

No add-on controls are deemed to be demonstrated for this type of operation. Further, since total NOx emission from this operation are estimated at 17.1 TPY, or 4.1% of total facility NOx emissions, no emission control system could have any significant reduction.

BACT is selected as natural gas fuel with NOx of 0.10 lb/MMBTU.

**(4) $SO_2$**

The application proposes BACT for $SO_2$ as a limit of 0.0006 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

No add-on controls are deemed to be demonstrated for this type of operation. Further, since total $SO_2$ emission from these operations are estimated at 0.1 TPY, or 0.1% of total facility emissions, no emission control system could have any significant reduction.

BACT is selected as natural gas fuel with $SO_2$ of 0.0006 lb/MMBTU.

**(5) VOC**

The application proposes BACT for VOC as a limit of 0.0055 lb/MMBTU, which is equal to the emission factor in AP-42 (7/00) for small gas-fired heaters.

The estimated VOC emissions would result in VOC concentrations which are below 20 ppm, the lowest level of control required by any MACT. Therefore, no controls are demonstrated or appropriate for this type of operation.

BACT is selected as natural gas fuel with VOC of 0.0055 lb/MMBTU.

**(6) GHG**

Natural gas fuel has the lowest $CO_2e$ emission rate of any standard fuel. Since the gas-fired heaters constitute such a small portion of facility GHG emissions, an in-depth BACT analysis is not warranted.

BACT is selected as natural gas fuel with GHG emissions of 120 lb/MMBTU.

**C. Emergency Diesel Engines**

There have been numerous BACT determinations for emergency diesel engines in the past five years. The only emissions controls identified in these determinations is certification of engines to NSPS Subpart IIII standards for NOx, CO, and VOC; and ultra-low sulfur fuel (15 ppm by weight sulfur or less) for $SO_2$ and PM. Emissions controls are provided primarily by a limitation on hours of operation.

**Summary of RBLC Listings – RICE NOx**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| CA-1191 | City of Victorville | Victorville 2 Hybrid Power Project | CA | 3/11/2010 | Emergency engine | 2,000 kW | None stated | Operational restriction to 50 hours/year |
| CA-1191 | City of Victorville | Victorville 2 Hybrid Power Project | CA | 3/11/2010 | Emergency firewater pump engine | 135 kW | None stated | Operational restriction to 50 hours/year |
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Emergency generator engine | 750 kW | None stated | Tier 2 engine-based, good combustion practices |
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Fire pump engine | 235 kW | None stated | Tier 3 engine-based, good combustion practices |
| SD-0005 | Basin Electric Power Cooperative | Deer Creek Station | SD | 6/29/2010 | Emergency generator | 2,000 kW | NSPS Subpart IIII | Comply with NSPS Subpart IIII |
| SD-0005 | Basin Electric Power Cooperative | Deer Creek Station | SD | 6/29/2010 | Fire water pump | 577 HP | NSPS Subpart IIII | Comply with NSPS Subpart IIII |
| AK-0071 | Chugash Electric Association | International station power plant | AK | 12/20/2010 | Black start generator | 1,500 kW | NSPS | NSPS |
| FL-0322 | Southeast Renewable Fuels, LLC | Sweet sorghum to ethanol biorefinery | FL | 12/23/2010 | Emergency generators | Two 2,682-HP | NSPS Subpart IIII | NSPS Subpart IIII |
| FL-0327 | Anadarko Petroleum Company | Anadarko-Phoenix Prospect | FL | 6/13/2011 | Emergency engine | Not stated | Not stated | Limited use to 24 hours per week |

**Summary of RBLC Listings – RICE NOx - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| MI-0400 | Wolverine Power Supply Cooperative | Wolverine Power Presque Isle | MI | 6/29/2011 | Fire pump | 420 HP | Not stated | Not stated |
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency diesel Generator | 1,250 HP | Not stated | Proper operation and good combustion practices |
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency fire pump | 350 HP | Not stated | Proper operation and good combustion practices |
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 2,682 HP | NSPS Subpart IIII | NSPS Subpart IIII |
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 600 HP | NSPS Subpart IIII | NSPS Subpart IIII |
| CA-1220 | San Diego International Airport | San Diego International Airport | CA | 10/3/2011 | Emergency ICE | 1,881 HP | Not stated | Tier 2 Certified and 50 hr/yr M&T limit |
| CA-1212 | City of Palmdale | Palmdale Hybrid Power Project | CA | 10/18/2011 | Emergency IC engine | 2,683 HP | Not stated | Not stated |
| CA-1212 | City of Palmdale | Palmdale Hybrid Power Project | CA | 10/18/2011 | Emergency IC engine | 182 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE NOx – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Fire Pump Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |
| MI-0402 | Wolverine Power Supply Cooperative, Inc. | Sumpter Power Plant | MI | 11/18/2011 | Diesel fuel fired combustion engine RICE | 732 HP | Not stated | Good combustion practices |
| CA-1221 | Pacific Bell | Pacific Bell | CA | 12/5/2011 | ICE emergency compression ignition | 3,634 HP | Not stated | Tier 2 certified and 50 hrs/yr for M&T limit |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency engines 1 – 8 | 29 HP | Not stated | Purchase of certified engine |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Fire Pump | 500 HP | Not stated | Purchase of certified engine based on NSPS Subpart IIII |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency generators 1 – 8 | 757 HP | Not stated | Engines must be certified to comply with NSPS Subpart IIII |
| MI-0394 | General Motors | Warren Technical Center | MI | 2/29/2012 | Four emergency generators | 2,280 Kw | Not stated | No add-on controls, but ignition timing retardation is good design. Engines are tuned for low-NOx operation versus low CO operation |

**Summary of RBLC Listings – RICE NOx – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| MI-0394 | General Motors | Warren Technical Center | MI | 2/29/2012 | Nine emergency generators | 4,035 HP | Not stated | No add-on controls, but ignition timing retardation is good design. Engines are tuned for low-NOx operation versus low CO operation |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Two emergency generators | 1,341 HP each | Not stated | Good combustion practices and limited hours of non-emergency operation |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Three firewater pump engines | 575 HP each | Not stated | Good combustion practices and limited hours of non-emergency operation |
| MI-0395 | General Motors | Warren Technical Center | MI | 7/13/2012 | Nine emergency generators | 4,035 HP | Not stated | No add-on controls, but ignition timing retardation is good design. Engines are tuned for low-NOx operation versus low CO operation |
| MI-0395 | General Motors | Warren Technical Center | MI | 7/13/2012 | Nine emergency generators | 3,634 HP | Not stated | No add-on controls, but ignition timing retardation is good design. Engines are tuned for low-NOx operation versus low CO operation |

**Summary of RBLC Listings – RICE NOx – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| NJ-0079 | CPV Shore, LLC | Woodbridge Energy Center | NJ | 7/25/12 | Emergency generator | Not stated | Not stated | 100 hr/yr, ULSD diesel |
| WY-0070 | Black Hills Power, Inc. | Cheyenne Prairie Generating Station | WY | 8/28/12 | Diesel emergency generator | 839 HP | Not stated | EPA Tier 2 rated |
| WY-0070 | Black Hills Power, Inc. | Cheyenne Prairie Generating Station | WY | 8/28/12 | Diesel fire pump engine | 327 HP | Not stated | EPA Tier 2 rated |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Emergency generator | 2,000 kW | Not stated | Good combustion practices |
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Fire pump | 223 kW | Not stated | Good combustion practices |
| NJ-0080 | Hess Newark Energy Center, LLC | Hess Newark Energy Center | NJ | 11/1/2012 | Emergency generator | Not stated | Not stated | 200 hr/yr |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two firewater pump diesel engines | 371 HP each | Not stated | Combustion design controls and usage limits |

**Summary of RBLC Listings – RICE NOx – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two emergency diesel generators | 1,006 HP each | Not stated | Combustion design controls and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Emergency diesel generator | 2,012 HP | Not stated | Combustion design controls and usage limits |
| LA-0272 | Dyno Nobel Louisiana Ammonia, LLC | Ammonia production facility | LA | 3/27/13 | Emergency diesel generator | 1,200 HP | Not stated | Compliance with NSPS Subpart IIII, good combustion practices |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency Fire water pump | 450 HP | Not stated | Not stated |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency generator | 1,135 HP | Not stated | Not stated |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency fire pump engine | 300 HP | Not stated | Certified to standards of NSPS Subpart IIII |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency generator | 2,250 kW | Not stated | Certified to standards of NSPS Subpart IIII |
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency generator | 4,690 HP | Not stated | Good combustion practices |
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency water pump | 481 HP | Not stated | Good combustion practices |

**Summary of RBLC Listings – RICE NOx – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel fire pump | 335 HP | Not stated | Not stated |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel generator | 670 HP | Not stated | Not stated |
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Emergency generator | 3,755 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Firewater pump engine | 373 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |

**Summary of RBLC Listings – RICE NOx – Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Emergency generator | 2,016 HP | Not stated | Not stated |
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Fire pump engine | 251 HP | Not stated | Not stated |
| TX-0671 | M&G Resins USA, LLC | Project Jumbo | TX | 12/1/2014 | Engines | 4,000 kW | Not stated | Each emergency generator's emissions factor is based on EPA's Tier 2 standards at 40 CFR 89.112 for NOx |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Prodcution Facility | AK | 1/23/2015 | Emergency camp generators | 2,695 HP | Not stated | Not stated |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Production Facility | AK | 1/23/2015 | Fire water pumps | 610 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE CO**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| CA-1191 | City of Victorville | Victorville 2 Hybrid Power Project | CA | 3/11/2010 | Emergency engine | 2,000 kW | None stated | Operational restriction to 50 hours/year |
| CA-1191 | City of Victorville | Victorville 2 Hybrid Power Project | CA | 3/11/2010 | Emergency firewater pump engine | 135 kW | None stated | Operational restriction to 50 hours/year |
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Emergency generator engine | 750 kW | None stated | Tier 2 engine-based, good combustion practices |
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Fire pump engine | 235 kW | None stated | Tier 3 engine-based, good combustion practices |
| SD-0005 | Basin Electric Power Cooperative | Deer Creek Station | SD | 6/29/2010 | Emergency generator | 2,000 kW | NSPS Subpart IIII | Comply with NSPS Subpart IIII |
| SD-0005 | Basin Electric Power Cooperative | Deer Creek Station | SD | 6/29/2010 | Fire water pump | 577 HP | NSPS Subpart IIII | Comply with NSPS Subpart IIII |
| FL-0322 | Southeast Renewable Fuels, LLC | Sweet sorghum to ethanol biorefinery | FL | 12/23/2010 | Emergency generators | Two 2,682-HP | NSPS Subpart IIII | NSPS Subpart IIII |
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency diesel Generator | 1,250 HP | Not stated | Ultra low sulfur diesel and good combustion practices |

**Summary of RBLC Listings – RICE CO - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency fire pump | 350 HP | Not stated | Ultra low sulfur diesel and good combustion practices |
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 2,682 HP | NSPS Subpart IIII | NSPS Subpart IIII |
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 600 HP | NSPS Subpart IIII | NSPS Subpart IIII |
| CA-1212 | City of Palmdale | Palmdale Hybrid Power Project | CA | 10/18/2011 | Emergency IC engine | 2,683 HP | Not stated | Not stated |
| CA-1212 | City of Palmdale | Palmdale Hybrid Power Project | CA | 10/18/2011 | Emergency IC engine | 182 HP | Not stated | Not stated |
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Fire Pump Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |

**Summary of RBLC Listings – RICE CO - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| MI-0402 | Wolverine Power Supply Cooperative, Inc. | Sumpter Power Plant | MI | 11/18/2011 | Diesel fuel fired combustion engine RICE | 732 HP | Not stated | Good combustion practices |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency engines 1 – 8 | 29 HP | Not stated | Purchase of certified engine |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Fire Pump | 500 HP | Not stated | Purchase of certified engine based on NSPS Subpart IIII |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency generators 1 – 8 | 757 HP | Not stated | Engines must be certified to comply with NSPS Subpart IIII |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Two emergency generators | 1,341 HP each | Not stated | Good combustion practices and limited hours of non-emergency operation |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Three firewater pump engines | 575 HP each | Not stated | Good combustion practices and limited hours of non-emergency operation |
| NJ-0079 | CPV Shore, LLC | Woodbridge Energy Center | NJ | 7/25/12 | Emergency generator | Not stated | Not stated | 100 hr/yr, ULSD diesel |
| WY-0070 | Black Hills Power, Inc. | Cheyenne Prairie Generating Station | WY | 8/28/12 | Diesel emergency generator | 839 HP | Not stated | EPA Tier 2 rated |
| WY-0070 | Black Hills Power, Inc. | Cheyenne Prairie Generating Station | WY | 8/28/12 | Diesel fire pump engine | 327 HP | Not stated | EPA Tier 2 rated |

**Summary of RBLC Listings – RICE CO - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Emergency generator | 2,000 kW | Not stated | Good combustion practices |
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Fire pump | 223 kW | Not stated | Good combustion practices |
| NJ-0080 | Hess Newark Energy Center, LLC | Hess Newark Energy Center | NJ | 11/1/2012 | Emergency generator | Not stated | Not stated | 200 hr/yr |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two firewater pump diesel engines | 371 HP each | Not stated | Combustion design controls and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two emergency diesel generators | 1,006 HP each | Not stated | Combustion design controls and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Emergency diesel generator | 2,012 HP | Not stated | Combustion design controls and usage limits |
| LA-0272 | Dyno Nobel Louisiana Ammonia, LLC | Ammonia production facility | LA | 3/27/13 | Emergency diesel generator | 1,200 HP | Not stated | Compliance with NSPS Subpart IIII, good combustion practices |

**Summary of RBLC Listings – RICE CO - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency Fire water pump | 450 HP | Not stated | Not stated |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency generator | 1,135 HP | Not stated | Not stated |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency fire pump engine | 300 HP | Not stated | Certified to standards of NSPS Subpart IIII |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency generator | 2,250 kW | Not stated | Certified to standards of NSPS Subpart IIII |
| IA-0106 | CF Industries Nitrogen, LLC | Port Neal Nitrogen Complex | IA | 7/12/2013 | Emergency generators | 180 gal/hr | Not stated | Good combustion practices |
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency generator | 4,690 HP | Not stated | Good combustion practices |
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency water pump | 481 HP | Not stated | Good combustion practices |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel fire pump | 335 HP | Not stated | Not stated |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel generator | 670 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE CO - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| FL-0346 | Florida Power & Light | Lauderdale Plant | FL | 4/22/2014 | Four 3,100 kW black start emergency generators | 3,100 kW | Not stated | Good combustion practices, NSPS IIII compliant |
| FL-0346 | Florida Power & Light | Lauderdale Plant | FL | 4/22/2014 | Emergency fire pump engine | 300 HP | Not stated | Good combustion practices, NSPS IIII compliant |
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Emergency generator | 3,755 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Firewater pump engine | 373 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Emergency generator | 2,016 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE CO - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Fire pump engine | 251 HP | Not stated | Not stated |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Production Facility | AK | 1/23/2015 | Emergency camp generators | 2,695 HP | Not stated | Not stated |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Production Facility | AK | 1/23/2015 | Fire water pumps | 610 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE VOC**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Emergency generator engine | 750 kW | None stated | Tier 2 engine-based, good combustion practices |
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Fire pump engine | 235 kW | None stated | Tier 3 engine-based, good combustion practices |
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency diesel Generator | 1,250 HP | Not stated | Ultra low sulfur diesel and good combustion practices |
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency fire pump | 350 HP | Not stated | Ultra low sulfur diesel and good combustion practices |
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Fire Pump Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency engines 1 – 8 | 29 HP | Not stated | Purchase of certified engine |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Fire Pump | 500 HP | Not stated | Purchase of certified engine based on NSPS Subpart IIII |

**Summary of RBLC Listings – RICE VOC - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency generators 1 – 8 | 757 HP | Not stated | Engines must be certified to comply with NSPS Subpart IIII |
| SC-0159 | Michelin North America, Inc. | US10 Facility | SC | 7/9/2012 | Emergency generators GEN1, GEN2 | 1,000 kW | Not stated | Compliance with NSPS Subpart IIII, 40 CFR 60.4202 and 4205 |
| SC-0159 | Michelin North America, Inc. | US10 Facility | SC | 7/9/2012 | Fire pumps FIRE1, FIRE2, and FIRE3 | 211 kW | Not stated | Compliance with NSPS Subpart IIII, 40 CFR 60.4202 and 4205 |
| NJ-0079 | CPV Shore, LLC | Woodbridge Energy Center | NJ | 7/25/12 | Emergency generator | Not stated | Not stated | 100 hr/yr, ULSD diesel |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Emergency generator | 2,000 kW | Not stated | Good combustion practices |
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Fire pump | 223 kW | Not stated | Good combustion practices |
| NJ-0080 | Hess Newark Energy Center, LLC | Hess Newark Energy Center | NJ | 11/1/2012 | Emergency generator | Not stated | Not stated | 200 hr/yr |

**Summary of RBLC Listings – RICE VOC - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two firewater pump diesel engines | 371 HP each | Not stated | Combustion design controls and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two emergency diesel generators | 1,006 HP each | Not stated | Combustion design controls and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Emergency diesel generator | 2,012 HP | Not stated | Combustion design controls and usage limits |
| LA-0272 | Dyno Nobel Louisiana Ammonia, LLC | Ammonia production facility | LA | 3/27/13 | Emergency diesel generator | 1,200 HP | Not stated | Compliance with NSPS Subpart IIII, good combustion practices |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency Fire water pump | 450 HP | Not stated | Not stated |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency generator | 1,135 HP | Not stated | Not stated |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency fire pump engine | 300 HP | Not stated | Certified to standards of NSPS Subpart IIII |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency generator | 2,250 kW | Not stated | Certified to standards of NSPS Subpart IIII |
| IA-0106 | CF Industries Nitrogen, LLC | Port Neal Nitrogen Complex | IA | 7/12/2013 | Emergency generators | 180 gal/hr | Not stated | Good combustion practices |
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency generator | 4,690 HP | Not stated | Good combustion practices |

**Summary of RBLC Listings – RICE VOC - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency water pump | 481 HP | Not stated | Good combustion practices |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel fire pump | 335 HP | Not stated | Not stated |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel generator | 670 HP | Not stated | Not stated |
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Emergency generator | 3,755 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Firewater pump engine | 373 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |

**Summary of RBLC Listings – RICE VOC - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Emergency generator | 2,016 HP | Not stated | Not stated |
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Fire pump engine | 251 HP | Not stated | Not stated |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Production Facility | AK | 1/23/2015 | Emergency camp generators | 2,695 HP | Not stated | Not stated |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Production Facility | AK | 1/23/2015 | Fire water pumps | 610 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE PM**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| CA-1191 | City of Victorville | Victorville 2 Hybrid Power Project | CA | 3/11/2010 | Emergency engine | 2,000 kW | None stated | Operational restriction to 50 hours/year, ultra low sulfur fuel not to exceed 15 ppm sulfur |
| CA-1191 | City of Victorville | Victorville 2 Hybrid Power Project | CA | 3/11/2010 | Emergency firewater pump engine | 135 kW | None stated | Operational restriction to 50 hours/year |
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Emergency generator engine | 750 kW | None stated | Tier 2 engine-based, good combustion practices |
| ID-0018 | Idaho Power Co | Langley Gulch Power Plant | ID | 6/25/2010 | Fire pump engine | 235 kW | None stated | Tier 3 engine-based, good combustion practices |
| SD-0005 | Basin Electric Power Cooperative | Deer Creek Station | SD | 6/29/2010 | Emergency generator | 2,000 kW | NSPS Subpart IIII | Comply with NSPS Subpart IIII |
| SD-0005 | Basin Electric Power Cooperative | Deer Creek Station | SD | 6/29/2010 | Fire water pump | 577 HP | NSPS Subpart IIII | Comply with NSPS Subpart IIII |
| AK-0071 | Chugash Electric Association | International station power plant | AK | 12/20/2010 | Black start generator | 1,500 kW | NSPS | NSPS Subpart IIII compliant |
| FL-0322 | Southeast Renewable Fuels, LLC | Sweet sorghum to ethanol biorefinery | FL | 12/23/2010 | Emergency generators | Two 2,682-HP | NSPS Subpart IIII | NSPS Subpart IIII |
| MI-0400 | Wolverine Power Supply Cooperative | Wolverine Power Presque Isle | MI | 6/29/2011 | Emergency generator | 4,000 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE PM - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| MI-0400 | Wolverine Power Supply Cooperative | Wolverine Power Presque Isle | MI | 6/29/2011 | Fire pump | 420 HP | Not stated | Not stated |
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency diesel Generator | 1,250 HP | Not stated | Ultralow sulfur diesel and good combustion practices |
| LA-0254 | Entergy Louisiana LLC | Ninemile Point Electric Generating Plant | LA | 8/16/2011 | Emergency fire pump | 350 HP | Not stated | Ultralow sulfur diesel and good combustion practices |
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 2,682 HP | NSPS Subpart IIII | NSPS Subpart IIII |
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 600 HP | NSPS Subpart IIII | NSPS Subpart IIII |
| CA-1212 | City of Palmdale | Palmdale Hybrid Power Project | CA | 10/18/2011 | Emergency IC engine | 2,683 HP | Not stated | Ultra low sulfur fuel |
| CA-1212 | City of Palmdale | Palmdale Hybrid Power Project | CA | 10/18/2011 | Emergency IC engine | 182 HP | Not stated | Ultra low sulfur fuel |

**Summary of RBLC Listings – RICE PM - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |
| FL-0328 | ENI US Operating Company, Inc. | ENI – Holy Cross Drilling Project | FL | 10/27/2011 | Emergency Fire Pump Engine | Not stated | Not stated | Good combustion practices based on current manufacturer specifications |
| MI-0402 | Wolverine Power Supply Cooperative, Inc. | Sumpter Power Plant | MI | 11/18/2011 | Diesel fuel fired combustion engine RICE | 732 HP | Not stated | Good combustion practices |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Two emergency generators | 1,341 HP each | Not stated | Low sulfur diesel and limited hours of non-emergency operation |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Three firewater pump engines | 575 HP each | Not stated | Low sulfur diesel and limited hours of non-emergency operation |
| NJ-0079 | CPV Shore, LLC | Woodbridge Energy Center | NJ | 7/25/12 | Emergency generator | Not stated | Not stated | 100 hr/yr, ULSD diesel |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Emergency generator | 2,000 kW | Not stated | Good combustion practices |

**Summary of RBLC Listings – RICE PM - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IA-0105 | Iowa Fertilizer Company | Iowa Fertilizer Company | IA | 10/26/2012 | Fire pump | 223 kW | Not stated | Good combustion practices |
| NJ-0080 | Hess Newark Energy Center, LLC | Hess Newark Energy Center | NJ | 11/1/2012 | Emergency generator | Not stated | Not stated | 200 hr/yr, ultr low sulfur diesel |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two firewater pump diesel engines | 371 HP each | Not stated | Combustion design controls and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two emergency diesel generators | 1,006 HP each | Not stated | Combustion design controls and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Emergency diesel generator | 2,012 HP | Not stated | Combustion design controls and usage limits |
| LA-0272 | Dyno Nobel Louisiana Ammonia, LLC | Ammonia production facility | LA | 3/27/13 | Emergency diesel generator | 1,200 HP | Not stated | Compliance with NSPS Subpart IIII, good combustion practices |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency Fire water pump | 450 HP | Not stated | Not stated |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency generator | 1,135 HP | Not stated | Not stated |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency fire pump engine | 300 HP | Not stated | Certified to standards of NSPS Subpart IIII |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency generator | 2,250 kW | Not stated | Certified to standards of NSPS Subpart IIII |

**Summary of RBLC Listings – RICE PM - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IA-0106 | FR Industries Nitrogen LLC | Port Neal Nitrogen Complex | IA | 7/12/2013 | Emergency generators | 180 gal/hr | Not stated | Good combustion practices |
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency generator | 4,690 HP | Not stated | Good combustion practices |
| IN-0179 | Ohio Valley Resources, LLC | Ohio Valley Resources | IN | 9/24/2013 | Diesel fired emergency water pump | 481 HP | Not stated | Good combustion practices |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel fire pump | 335 HP | Not stated | Not stated |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel generator | 670 HP | Not stated | Not stated |
| FL0346 | Florida Power & Light | Lauderale Plant | FL | 4/22/14 | Four black start emergency generators | 3,100 kW | Not stated | Good combustion practices, NSPS Subpart IIII compliant |
| FL0346 | Florida Power & Light | Lauderale Plant | FL | 4/22/14 | Emergency fire pump engines | 300 HP | Not stated | Good combustion practices, NSPS Subpart IIII compliant |
| IN-0185 | MAG Pellet | MAG Pellet | IN | 4/24/2014 | Diesel fire pump | 300 HP | Not stated | Not stated |
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |

**Summary of RBLC Listings – RICE PM - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| IN-0173 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Diesel fired emergency generator | 3,600 HP | Not stated | Good combustion practices |
| IN-0180 | Midwest Fertilizer Corporation | Midwest Fertilizer Company | IN | 6/4/14 | Fire pump | 500 HP | Not stated | Good combustion practices |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Emergency generator | 3,755 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |
| IL-0114 | Cronus Chemicals, LLC | Cronus Chemicals | IL | 9/5/2014 | Firewater pump engine | 373 HP | Not stated | Tier IV standards for non-road engines at 40 CFR 1039.102, Table 7 |
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Emergency generator | 2,016 HP | Not stated | Not stated |
| WV-0025 | Moundsville Power, LLC | Moundsville Combined Cycle Power Plant | WV | 11/21/2014 | Fire pump engine | 251 HP | Not stated | Not stated |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Prodcution Facility | AK | 1/23/2015 | Emergency camp generators | 2,695 HP | Not stated | Not stated |
| AK-0082 | Exxon Mobil Corporation | Point Thomson Production Facility | AK | 1/23/2015 | Fire water pumps | 610 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE $SO_2$**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 2,682 HP | NSPS Subpart IIII | NSPS Subpart IIII, ultra low sulfur diesel fuel no more than 0.0015% by weight sulfur |
| FL-0332 | Highlands Envirofuels, LLC | Highlands biorefinery and cogeneration plant | FL | 9/23/2011 | Emergency equipment | 600 HP | NSPS Subpart IIII | NSPS Subpart IIII |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency engines 1 – 8 | 29 HP | Not stated | Low sulfur diesel, maximum of 100 hours per year running time for maintenance and testing |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Fire Pump | 500 HP | Not stated | Low sulfur diesel, maximum of 100 hours per year running time for maintenance and testing |
| SC-0113 | Pyramax Ceramics, LLC | Pyramax Ceramics | SC | 2/8/2011 | Emergency generators 1 – 8 | 757 HP | Not stated | Low sulfur diesel, maximum of 100 hours per year running time for maintenance and testing |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Two emergency generators | 1,341 HP each | Not stated | Use of low sulfur diesel and limited hours of non-emergency operation |
| IN-0166 | Indiana Gasification, LLC | Indiana Gasification, LLC | IN | 6/27/12 | Three firewater pump engines | 575 HP each | Not stated | Use of low sulfur diesel and limited hours of non-emergency operation |

**Summary of RBLC Listings – RICE $SO_2$ - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| WY-0070 | Black Hills Power, Inc. | Cheyenne Prairie Generating Station | WY | 8/28/12 | Diesel emergency generator | 839 HP | Not stated | Ultra low sulfur diesel |
| WY-0070 | Black Hills Power, Inc. | Cheyenne Prairie Generating Station | WY | 8/28/12 | Diesel fire pump engine | 327 HP | Not stated | Ultra low sulfur diesel |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| PA-0278 | Moxie Energy LLC | Moxie Liberty Asylum Power Plant | PA | 10/10/2012 | Emergency generator | Not stated | Not stated | Not stated |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two firewater pump diesel engines | 371 HP each | Not stated | Ultra low sulfur distillate and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Two emergency diesel generators | 1,006 HP each | Not stated | Ultra low sulfur distillate and usage limits |
| IN-0158 | St Joseph Energy Center, LLC | St Joseph Energy Center | IN | 12/3/2012 | Emergency diesel generator | 2,012 HP | Not stated | Ultra low sulfur distillate and usage limits |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency Fire water pump | 450 HP | Not stated | Not stated |
| PA-0291 | Hickory Run Energy, LLC | Hickory Run Energy Station | PA | 4/23/2013 | Emergency generator | 1,135 HP | Not stated | Not stated |

**Summary of RBLC Listings – RICE $SO_2$ - Continued**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Unit Capacity | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency fire pump engine | 300 HP | Not stated | Not stated |
| OH-0352 | Arcadis US, Inc. | Oregon Clean Energy Center | OH | 6/18/2013 | Emergency generator | 2,250 kW | Not stated | Not stated |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel fire pump | 335 HP | Not stated | Not stated |
| PR-0009 | Energy Answers Aercibo, LLC | Arecibo Puerto Rico Renewable Energy Project | PR | 4/10/2014 | Emergency diesel generator | 670 HP | Not stated | Not stated |
| FL-0346 | Florida Power & Light | Lauderdale Plant | FL | 4/22/2014 | Four 3,100 kW black start emergency generators | 3,100 kW | Not stated | Ultra low sulfur diesel, NSPS IIII compliant |
| FL-0346 | Florida Power & Light | Lauderdale Plant | FL | 4/22/2014 | Emergency fire pump engine | 300 HP | Not stated | Ultra low sulfur diesel, NSPS IIII compliant |
| TX-0671 | M&G Resins USA, LLC | Project Jumbo | TX | 12/1/2014 | Engines | 4,000 kW | Not stated | Ultra low slulfur fuel meet requirement of 15 ppm |

A review of the RBLC does not indicate any controls that have been identified as BACT for similar emergency engines with limited annual hours of operation. A review of available technology identified low sulfur fuel for the control of $SO_2$, catalytic controls for $NO_X$, and the use of an oxidation catalyst for the control of VOC and CO emissions. The $NO_X$ catalyst system and the oxidation catalyst system are add-on controls that convert $NO_X$ to nitrogen and oxygen, convert the CO to $CO_2$, and oxidize some of the VOC. The catalyst material is similar to the catalytic converters used on automobiles and is typically metal based and become potential hazardous wastes. All add-on controls are considered as economically infeasible for this type of installation due to the minimum hours of operation. Therefore, add-on catalytic controls have been eliminated as a possible emission reduction strategy.

The applicant has proposed BACT for the control of $SO_2$, $NO_X$, $PM_{10}$, VOC, GHG, and CO emissions resulting from the combustion of fuel oil for the emergency generators and fire pump as the use of low sulfur No. 2 fuel oil combined with good combustion practices and limited annual operation. The proposed control is selected as BACT. Operation of the emergency engines will be limited to 100 hours each annually, unless due to emergency circumstances.

## D. Materials Storage and Handling

### (1) $PM_{10}$ / $PM_{2.5}$

The facility will include three silos, two for raw materials and one for baghouse dust. BACT for these silos is selected as bin vent filters achieving 0.01 gr/DSCF. Since these filters are equivalent to the most efficient controls available for PM, no further BACT analysis is warranted.

## E. Cooling Towers

### (1) $PM_{10}$ / $PM_{2.5}$

Particulate emissions occur from the cooling tower as a result of the total solids (suspended and dissolved metals and minerals) in the water being entrained in the air stream. Mist eliminators prevent most of the water from escaping out the top of the tower; however, some water droplets (with dissolved and suspended particulate) do escape the cooling tower and are referred to as "drift". For this analysis, as a simplifying conservative assumption, all of the particulate resulting from the drift is considered to be $PM_{10}$.

There are several ways to reduce drift (and resulting PM and $PM_{10}$) emissions from cooling towers. Process modifications could be considered, including elimination of a cooling tower by using an available water source such as a stream or nearby water reservoir or lake to provide enough water to use "once through" cooling. A standard cooling tower is similar to a once through system except the water is recycled in the tower. Another alternative is the use of air fin cooling. A third alternative is to use a hybrid system that combines some aspects of a wet and a dry system. A fourth option is the installation of modern high efficiency drift eliminators on the cooling tower. While it is theoretically possible to take steps to reduce total dissolved solids content of the water, this has not been identified as a demonstrated control.

**Summary of RBLC Listings – PM Emissions from Piles**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | Scrap steel storage piles | | 10% opacity for truck unloading | Minimize drop height |

**Summary of RBLC Listings – PM Emissions from Material Transfer**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | Scrap steel storage piles | | 10% opacity for truck unloading | Minimize drop height |

**Summary of RBLC Listings – PM Emissions from Material Transfer (Flux and Alloy)**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| OH-0350 | Republic Steel | Lorain | OH | 7/18/12 | Flux and carbon storage material building | | | Enclosures and baghouses |
| OH-0316 | V & M Star | Mahoning | OH | 9/23/08 | Alloy, additives, and flux handling | 134 TPH 830,000 TPY | 0.01 gr/DSCF | Silo bin vent filters |
| OK-0128 | Mid American Steel and Wire | Madill | OK | 9/8/08 | Storage silos | | 0.005 gr/DSCF | Baghouses |
| MN-0070 | Minnesota Steel Industries | Itasca | MN | 9/7/07 | Additive handling | | 0.0025 gr/DSCF | baghouse |

**Summary of RBLC Listings – PM Emissions from Cooling Towers**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | Caster cooling tower | 1,630 GPM | 0.0005% drift | Drift eliminators |
| GA-0142 | Osceola Steel | Cook | GA | 12/29/10 | Cooling towers | | 0.0005% drift | Drift eliminators |
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | Cooling towers | 225,000 GPH | | |

**Summary of RBLC Listings – PM Emissions from Roads**

| RBLC ID | Company Name | Facility | State | Permit Date | Emission Unit | Throughput | Emissions Limit | Control Technology |
|---|---|---|---|---|---|---|---|---|
| MI-0404 | Gerdau Macsteel | Monroe | MI | 3/21/13 | Roads | | 5% opacity | Fugitive dust plan |
| OH-0341 | Nucor Steel | Marion | OH | 10/13/11 | Roads | | No VE | Watering, resurfacing, chemical stabilization, speed reduction |
| OH-0315 | New Steel International | Haverhill | OH | 5/6/08 | Roads and parking areas | | | Wet suppressants, watering, speed reduction, and vacuuming and sweeping |

The only feasible option at this location is a wet cooling tower with high efficiency drift eliminators. The temperatures achievable by air-cooled systems are limited by ambient temperatures.

The applicant proposed that high efficiency drift eliminators, with the capability to reduce the potential drift to a maximum of 0.001% of the circulating water flow rate, is BACT for $PM_{10}$ control at the cooling tower. This emission rate is somewhat higher than many cooling towers, but the sizes proposed are very much smaller than the cooling towers that are installed at power plants, refineries, etc.

Since the proposed BACT did not equal the lowest emission level shown on RBLC, a cost analysis was provided comparing the necessary design costs of the proposed 0.001% to the lowest value of 0.0005% drift. The cost comparison used the methods of EPA "Air Pollution Cost Control Manual" (January 2002). A 20 year lifespan and 7% interest rate were used in the cost analysis. The incremental costs of achieving 0.0005% drift were stated at $21,142 per ton PM controlled for the larger two cooling towers and $10,441 per ton PM for the smaller cooling tower. These increment costs are excessive.

| EPN No. | Capital Cost of Incremental Control | Annualized Cost of Incremental Control | PM Emissions at 0.001% Drift | PM Emissions at 0.0005% Drift | Incremental Emissions TPY | Incremental Costs $/ton |
|---|---|---|---|---|---|---|
| COOLTWR1 | $20,000 | $1,888 | 0.36 | 0.18 | 0.18 | $10,441 |
| COOLTWR2 | $54,000 | $5,097 | 0.48 | 0.24 | 0.24 | $21,142 |
| COOLTWR2 | $54,000 | $5,097 | 0.48 | 0.24 | 0.24 | $21,142 |

The proposed control technology is selected as BACT as a drift of 0.001%. Compliance will be demonstrated by vendor guarantees or design specification for used equipment.

## F. Casting Operations

### (1) $PM_{10}$ / $PM_{2.5}$ and VOC

The casting operation involves pouring of molten steel into an ingot mold ("teeming") . The unit will use a lubricating oil which will decompose or evaporate on contact from hot steel in the unit, resulting in VOC and condensable PM emissions. It should be noted that the Durant facility proposes a vegetable oil lubricant which will not yield $SO_2$ emissions upon thermal decomposition.

A review of RBLC showed a single entry for teeming, which involved units not planned for the Durant facility. There was an additional entry for PM from a caster, but it was for a $PM_{2.5}$ non-attainment area LAER determination, therefore, not applicable to this permitting action. There are no RBLC determinations for VOC and PM emissions from the continuous caster, therefore, there are no feasible control technologies identified for this operation.

BACT is selected as a limit on lube oil usage of 52.66 TPY, 12-month rolling total.

## G. Outdoor Materials Piles / Storage

A review of RBLC showed only one BACT determination for outdoor material piles: minimizing drop height. The RBLC determination does not discuss how this work practice would be implemented. In addition, use of windbreaks and watering of piles may be used, although watering may result in unacceptable solidification of slag or other materials discharged from high-temperature operations. Most of the outdoor piles materials are scrap steel which has very little brittle materials susceptible to becoming fugitive dust.

Since the PM emissions are fugitive, no numerical limitation is practical. BACT for PM emissions from outdoor piles is selected as the following measures:

1. Minimizing drop height of material transfer conveyors.
2. Wetting of storage piles.
3. Usage of windbreaks around material storage piles.

## H. Roads

### (1) $PM_{10}$ / $PM_{2.5}$

A review of RBLC determinations for road dust showed the following controls have been required:

- Watering
- Chemical stabilization
- Resurfacing
- Speed limits
- Vacuuming and sweeping (presumably of paved roads)

Watering and chemical stabilization are used primarily for unpaved or gravel roads, making them impractical for paved roads.

Since the PM emissions are fugitive, no numerical limitation is practical. BACT for PM emissions from roads is selected as work-practice standards of paving roads, sweeping them when needed, and setting of speed limits to minimize fugitive dust emissions.

## I. Torch Cutting of Scrap

The application proposes use of gas fuel as BACT for NOx, $SO_2$, VOC, PM, and CO emissions from torch cutting of scrap.

There are two BACT determinations on RBLC for this type of operation, for Gerdau Macsteel in Michigan (issued 2013) and Nucor Steel in Ohio (issued 2010). Both accept use of pipeline-grade natural gas as BACT without specifying other emissions limits.

**(1) $PM_{10}$ / $PM_{2.5}$**

The following control technology was identified on RBLC for PM emissions from torch cutting:

- Use of pipeline quality natural gas.

Since a single control was identified, the BACT analysis will be brief. BACT is selected as natural gas or LPG for torch cutting.

**(2) NOx**

The following control technologies were identified on RBLC for NOx emissions from torch cutting:

- Use of pipeline quality natural gas.
- Oxy-fired torches
- Good combustion practices

None of these may be rejected as infeasible, although RBLC does not discuss what is entailed by "good combustion practices."

Use of oxy-fired torches and natural gas or LPG fuel is selected as BACT for the torch cutting operation.

**(3) $SO_2$**

The following control technology was identified on RBLC for$SO_2$ emissions from torch cutting:

- Use of pipeline quality natural gas.

Since a single control was identified, the BACT analysis will be brief. BACT is selected as natural gas or LPG for torch cutting.

**(4) CO**

The following control technologies were identified on RBLC for CO emissions from torch cutting:

- Use of pipeline quality natural gas.
- Good combustion practices

None of these may be rejected as infeasible, although RBLC does not discuss what is entailed by "good combustion practices."

Use of oxy-fired torches and natural gas or LPG fuel is selected as BACT for CO emissions from the torch cutting operation.

**(5) VOC**

The following control technologies were identified on RBLC for VOC emissions from torch cutting:

- Use of pipeline quality natural gas.
- Good combustion practices

None of these may be rejected as infeasible, although RBLC does not discuss what is entailed by "good combustion practices."

Use of oxy-fired torches and natural gas or LPG fuel is selected as BACT for VOC emissions from the torch cutting operation.

## SECTION VI. AIR QUALITY IMPACTS

Net emission increases of $SO_2$, CO, $NO_X$, $PM_{2.5}$, and $PM_{10}$ are greater than the significant emission rate threshold for triggering PSD review, and emissions of VOC are greater than 100 TPY. Therefore, an ambient air impact analysis is required for each of these pollutants. First, air dispersion modeling is performed to determine if any air impacts will exceed a significant ambient impact level (SIL) or monitoring exemption level. If a SIL is exceeded, then a full impact analysis (consisting of a demonstration of compliance with the NAAQS and with PSD increment consumption) is required for that pollutant. If a SIL is not exceeded, then no further air quality analysis is required for that pollutant.

### Modeling Approach – PSD Class II Areas

*Significant Impact Level Justification*
On January 22, 2013, the U.S. Court of Appeals for the District of Columbia Circuit granted a request from the EPA to vacate and remand to the EPA portions of two PSD $PM_{2.5}$ rules [40 CFR §51.166(k)(2) and 40 CFR §52.21(k)(2)] addressing select provisions of the $PM_{2.5}$ SILs so that the EPA could voluntarily correct an error in these provisions. Accordingly, the EPA amended its regulations and removed the vacated $PM_{2.5}$ SILs effective December 9, 2013.

However, it should be noted that the federal rule that defines when a major source or major modification is considered to cause or contribute to a violation of a NAAQS [40 CFR §51.165(b)(2)] was not vacated in the January 22, 2013 decision or December 9, 2013 amendment. Consistent with this definition, in the EPA's document entitled *Circuit Court Decision on $PM_{2.5}$ Significant Impact Levels and Significant Monitoring Concentrations, Questions and Answers, March 4, 2013,* the EPA states that applicants can continue to demonstrate that proposed $PM_{2.5}$ emissions do not contribute to existing violations of the NAAQS by demonstrating that the proposed source's $PM_{2.5}$ impacts do not "significantly" contribute to existing $PM_{2.5}$ NAAQS violations. To demonstrate that these criteria can be met for the project area, the difference between the $PM_{2.5}$ NAAQS and the representative modeling background concentrations are summarized in the following table.

**$PM_{2.5}$ SIL Justification**

| Pollutant | Averaging Period | NAAQS ($ug/m^3$) | Monitoring Station Concentration, $ug/m^3$ | Difference $ug/m^3$ | SIL $ug/m^3$ |
|---|---|---|---|---|---|
| $PM_{2.5}$ | 24-hour | 35 | 22.2 | 12.8 | 1.2 |
| | Annual | 12 | 9.0 | 3.0 | 0.3 |

The differences between the NAAQS and the current ambient air monitor concentrations are far greater than the EPA SIL values for both 1-hour and annual averaging periods. The EPA states that it would be sufficient in most cases for permitting authorities to conclude that a proposed source with a predicted impact below the EPA SIL value will not cause or contribute to a violation of the NAAQS. Based on this EPA guidance, the proposed $PM_{2.5}$ emissions will not contribute significantly to existing ambient air concentrations at locations where the project-related impacts are less than the EPA SILs. Therefore, the EPA $PM_{2.5}$ SILs were utilized to define the scope of the full impact modeling analyses.

*Significant Impact Level Analysis*
With respect to demonstrating compliance with the NAAQS for $NO_2$, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$ and compliance with the PSD Increment consumption limits for $NO_2$, $SO_2$, $PM_{10}$ and $PM_{2.5}$, a preliminary analysis was conducted to determine if the predicted off-property concentrations resulting from the proposed project's PSD-significant emission increases are greater than the applicable SILs. No further modeling is required to demonstrate compliance if the maximum predicted concentrations are below the applicable SILs.

For predicted maximum impacts concentrations that are equal to or greater than the applicable SILs, full impacts modeling was conducted to demonstrate compliance with the applicable standards.

*PSD Ambient Monitoring Data Requirement Analysis*
An analysis was conducted for $NO_2$, $SO_2$, CO, and $PM_{10}$ to determine if the predicted off-property concentrations resulting from the PSD-significant emission increases are greater than the EPA's significant monitoring concentrations (SMCs). If a predicted maximum concentration is less than the applicable SMC, the demonstration is complete. If a predicted maximum concentration is greater than the applicable SMC, representative ambient air monitoring data must be compiled and analyzed to establish the existing air quality for the area. For $PM_{2.5}$, representative preconstruction monitoring data were compiled as the SMCs for $PM_{2.5}$ have been vacated.

*Full Impact Analysis – NAAQS*
A full impact modeling analysis was performed for applicable $NO_2$, CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$ emissions to predict cumulative ambient concentrations for comparison to the NAAQS. This analysis included modeling of site-wide emissions from the proposed steel mill as well as emissions from off-site sources that the AQD staff has determined to have a potential to significantly impact the area affected by the project. Representative ambient background concentrations were added to the full impact modeling results to complete the NAAQS demonstration.

*Full Impact Analysis – PSD Increment*
A full impact modeling analysis was performed for applicable $NO_2$, $SO_2$, $PM_{10}$, and $PM_{2.5}$ emissions to predict cumulative ambient concentrations for comparison to the PSD Increment consumption limits. This analysis included modeling of emissions from the proposed steel mill as well as off-site PSD Increment-consuming emission sources that the AQD staff has determined to have a potential to significantly impact the area affected by the project. There is no PSD Increment for CO; therefore, a PSD Increment analysis was not conducted for CO.

*PSD Ozone Analysis*
Pre-construction monitoring for ozone is required for any new source or modified existing source located in an unclassified or attainment area with greater than 100 tons per year of VOC or NOx emissions. Continuous ozone monitoring data must be used to establish existing air quality concentrations in the vicinity of the proposed source or modification.

The facility will be located 2.4 miles southeast of Durant in a rural area of Bryan County and within 4.1 miles (7-km) northeast of the ozone special study monitor (ID 40-013-0380). The monitor was located in Bryan County from Mid 2013 through December of 2014. The fourth highest observed 8-hour concentration at the monitor in 2014 was 0.065 ppm.

Methods for evaluating single source impacts on ozone concentrations are not consistent, due to the lack of availability of data at a refined level, readily available tools and EPA guidance. DEQ has evaluated the impact of new sources using an existing air quality database generated for a SIP evaluation and the CAMx photochemical modeling system in the past. Modeling conducted in support of the Huber Engineered Woods, LLC facility in McCurtain County 90 miles due east of the proposed Commercial Metals facility resulted in maximum projected ozone increases of 0.003 ppm for emission increases of 1,200 tons per year of $NO_X$ and 1,000 tons per year of VOC. This evaluation was documented in permit number 2003-099-C (M-3) PSD. Projected emissions for the Commercial Metals facility are 104.01 tons per year of VOC and 115.65 tons per year of NOx. These emissions are nearly 1/10 of the emissions which resulted in the projected 3ppb increase in ozone. The existing monitor was adequate to establish existing ozone concentration for the facility and its impact area. Given source parameters and local emission densities, any resultant ozone concentration increases are likely to be near the facility, nominal, and therefore will not cause or contribute to a NAAQS violation. No further analyses are warranted

*Class I Area Increment Analysis*
EPA Region VI requires an analysis of the consumption of Increment limits for PSD Class I areas if a facility is within 300 km of a Class I area. As discussed above, there are two Class I areas located within 300 km of the proposed steel mill: Caney Creek Wilderness Area in Arkansas and Wichita Mountains Wilderness Area in Oklahoma. The AQD recommends using the Tier 1 analysis procedure in its *ADMG* to demonstrate that predicted off-property concentrations resulting from the steel mill's proposed PSD-significant emissions do not exceed applicable EPA Class I SILs. Accordingly, the off-property concentrations resulting from the steel mill's proposed PSD-significant emissions were evaluated to a distance of 50 km in the directions of the Class I areas.

**Building Wake Effects**

Building downwash effects were included in the modeling based on guidance provided in the *User's Guide to the Building Profile Input Program* (EPA, October 1993). The EPA currently requires that all building downwash be determined using the EPA Building Profile Input program (BPIPPRM) subroutine. Providence/ORIS, LLC's "BEE-Line BEEST for Windows" was used for calculating downwash parameters for this analysis. This program includes downwash software which uses the latest BPIPPRM subroutine (version 04274) in its calculations.

Information regarding the steel mill's structures was entered into the BPIP-based software program. The downwash parameter values were calculated for each point source by the software program and inserted into the AERMOD input files in the appropriate locations and formats.

**Terrain**

Elevations of the sources and structures at the steel mill, off-property sources, and the receptors examined in the modeling were determined using 1-arc-second (~30-m) resolution U.S. Geological Survey (USGS) National Elevation Dataset (NED) data. Using these topographical data, AERMAP, as implemented through the BEEST graphical user interface, calculated (interpolated) the terrain elevations for each receptor, source and structure and the hill height scale for each receptor.

**$PM_{2.5}$ Secondary Emissions**

Secondary $PM_{2.5}$ emissions can be formed through the emission of gases such as $SO_2$ and NOx. Portions of these gaseous emissions can form fine particulates in the atmosphere through chemical reactions or condensation. These chemical transformations gradually occur in the atmosphere over time (i.e., in hours or days, depending on atmospheric conditions and other variables) and, as a result, secondary $PM_{2.5}$ impacts are expected to occur at some distance from the source of its gaseous emission precursors. Therefore, it should be noted that secondary $PM_{2.5}$ impacts associated with the proposed project sources will occur outside of the Area of Significant Impact (AOI) defined by the primary $PM_{2.5}$ emissions and are expected to be insignificant in quantity.

Based on a review of the EPA's *AirData* website (http://www.epa.gov/airdata), the total NOx and $SO_2$ emissions in Bryan County are 4,370 tons per year, whereas the NOx and $SO_2$ emissions from the proposed steel mill will only be 312 tons per year. Based on a comparison of these emission totals, the steel mill will only contribute a very small portion of the total NOx and $SO_2$ emissions within the air shed of the proposed location, with the majority coming from other industrial sources and vehicle traffic. Also, ambient air concentrations due to secondary formation of $PM_{2.5}$ created from nearby and distance sources are included in the monitored $PM_{2.5}$ concentrations at the representative ambient air monitoring station. Therefore, the fraction of $PM_{2.5}$ from other sources in the ambient air within the proposed project's AOI that results from secondary formation is accounted for by the addition of the background $PM_{2.5}$ concentration to the modeling results for the direct (primary) $PM_{2.5}$ emissions.

To demonstrate that $PM_{2.5}$ secondary formation from project-related emissions will be insignificant, the following analysis was conducted.

1. Project-related emissions of direct $PM_{2.5}$ emissions were modeled at receptors located at 50 km from the project. Although the maximum secondary $PM_{2.5}$ concentrations are expected to occur beyond this distance, a conservative estimate of the maximum magnitude of the total $PM_{2.5}$ concentration (i.e., direct $PM_{2.5}$ plus secondary $PM_{2.5}$) beyond 50 km can be assessed at 50 km from the project. Based on the 50-km modeling, the maximum annual average concentration of direct $PM_{2.5}$ at this distance is 0.01 $\mu g/m^3$, which is only 4 % of the annual SIL.
2. Per the AQD's 2013 air data report (http://www.deq.state.ok.us/aqdnew/airreport2013/pm25.html), the nitrate and sulfate portion of $PM_{2.5}$ from secondary formation only accounts for a small fraction of the total $PM_{2.5}$ emissions in Oklahoma. Consistent with the AQD's measurements, it is expected that the secondary $PM_{2.5}$ formation from the project's proposed NOx and $SO_2$ emissions will be a small fraction of the project's proposed direct $PM_{2.5}$ emissions. Therefore, even if the maximum $PM_{2.5}$ concentrations predicted at 50 km resulting from the project's direct $PM_{2.5}$ emissions (i.e., 4% of the SIL) and concentrations of $PM_{2.5}$ formed from the proposed NOx and $SO_2$ emissions are added together, the sum of the concentrations is not expected to exceed the SIL beyond the AOI.

Therefore, based on the discussion presented above, significant secondary $PM_{2.5}$ formation is not expected from the project sources.

**NOx-to-$NO_2$ Ambient Ratio**

Following guidance included in the EPA's memorandum entitled *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-Hour National Ambient Air Quality Standard (*Tyler Fox, March 1, 2011), the Tier 2 default NOx-to-$NO_2$ conversion factor of 80 percent was applied to the hourly modeling results. The Appendix W default NOx-to-$NO_2$ conversion factor of 75 percent was applied to annual modeling results. Note that in the 1-hour $NO_2$ and annual $NO_2$ modeling, NOx emission rates were initially modeled and these respective conversion factors were applied to the modeling results.

**On-Site Emission Source Inventory for the Modeling Analyses**

*Melt Shop Baghouse and Caster Spray Chamber Stack*
The Melt Shop baghouse stack plume will exhaust vertically and will contain significant momentum and buoyancy flux. In order to correctly calculate the height of the plume, the baghouse stack was modeled as a point source with parameter values based on engineering design information. The release height value was based on the actual exit height of the stack. Stack parameter values (i.e., stack velocity and exhaust temperature) for the baghouse stack can vary based on whether or not the EAF is operating in tapping mode. To ensure the worst-case ambient air impacts were assessed for the project, these two operating scenarios were modeled separately in the AQA. The operational scenarios are as follows:

- Scenario 1 – Tapping Operations: the scenario corresponds to the maximum exhaust flow rate at a lower exhaust temperature. The particulate matter emissions are function of the flow rate; therefore, the maximum short-term emissions for $PM_{10}$ and $PM_{2.5}$ were modeled using the corresponding stack velocity and exhaust temperature.
- Scenario 2 – Non-Tapping Operations: this scenario corresponds to a lower exhaust flow rate at a higher exhaust temperature. The short-term emissions for $PM_{10}$ and $PM_{2.5}$ and the stack velocity were calculated based on the lower flow rate, and the corresponding exhaust temperature was used in the modeling.

For all other short-term standards and all annual standards, the maximum emission rates were modeled for both scenarios. Each modeling scenario was modeled in separate Source Groups. The Caster spray chamber stack will also exhaust vertically. The caster spray chamber stack was modeled as a point source with parameter values based on engineering design information. The release height value was based on the actual exit height of the stacks.

*Caster Roof Monitor Vent*
The Caster Room roof monitor vent is elongated and the exhaust is released vertically. In order to correctly calculate the height of the plume, the vent was modeled as several point sources with velocity and temperature values based on engineering design information. Emissions from the roof monitor vent were equally divided into eight point sources, each having an equivalent diameter of 16.0 feet (ft). The release height value used in the modeling was based on the actual release height of the vent.

*Horizontal Releases*
Horizontal releases (such as scrap cutting) were modeled following the guidance provided in EPA's *AERMOD Implementation Guide, March 19, 2009* using the actual exhaust temperature and diameter and a 0.001-meters per second exit velocity. Vents for which design of a vertical release is not certain (such as silo filter vents) were also be modeled as pseudo-point sources.

*Open Doors*
Doors were modeled with release heights equal to two-thirds (2/3) the actual height of openings. Fugitive emissions from EPN DUSTBLDG exit via two 30-ft tall openings. Emissions from the EPN DUSTBLDG were equally divided into two point sources. Both openings were modeled with pseudo-point parameters with a release height of 20 ft (30*2/3).

*Material Transfer Points*
Emissions from material transfer points were modeled using pseudo-point parameter values with release heights equal to average height of the drop points.

*Storage Piles*
Storage piles were modeled as area sources with dimensions corresponding to the surface area of each pile. The modeled height of the storage piles was the average height of the piles.

*Road Emissions*
Fugitive road dust emissions were modeled as volume sources. Unpaved roads and paved roads sections were modeled separately.

Guidance provided in the AQD's Air Quality Modeling Guidance for Oklahoma Air Quality Permits (*ADMG)* was used to calculate width of the plume, the height of plume, the initial vertical dimension (Sigma Z), and the initial lateral dimension (Sigma Y). The width of the plume is width of the vehicle plus six meters. The total length of roadways at the steel mill will be more than 3.5 km; therefore, the roadways were represented by alternating volume sources by dividing the roadway by twice the adjusted width. The total number of volume sources was calculated by dividing length of the road by adjusted width of the plume. Unpaved road section was divided into 21 volume sources. Paved road sections were divided into 170 volume sources.

The release height of each volume source was assumed to be half the height of the plume. The height of plume was calculated as height of the vehicle generating the emissions times 1.7. The initial vertical dimension (Sigma Z) was calculated by dividing height of plume by 2.15. The initial lateral dimension (Sigma Y) was calculated by dividing width of plume by 2.15.

*Cooling Towers*
Emissions from each cooling tower cell were modeled as vertical stacks using ambient hourly temperatures. The stack exit velocity was based on engineering design information.

*Emergency Equipment*
Two emergency generator engines and one emergency water pump engine will be located at the steel mill. The maximum actual duration of each engine test is 60 minutes and the maximum frequency of test occurrence will be once per week. None of the three engines will be tested simultaneously with one another.

CMC believes that the emissions from engines meet the EPA definition of an intermittent source. The EPA's *Additional Clarification Regarding Application of Appendix W Modeling Guidance for the 1-hour $NO_2$ National Ambient Air Quality Standard;* March 1, 2011, states that compliance demonstrations for the 1-hour $NO_2$ and $SO_2$ NAAQS should be based on emission scenarios that can logically be assumed to be relatively continuous or which occur frequently enough to contribute significantly to the annual distribution of daily maximum 1-hour concentrations. As specified in Subpart IIII of Part 60 of Title 40 of the Federal Code of Regulations, the maximum allowable annual number of hours of non-emergency/testing operation for each engine is 100 hours per year. Because each engine is expected to operate in a non-emergency mode somewhat less than 100 hours per year, these engines were not included in the 1-hour $NO_2$ and 1-hour $SO_2$ NAAQS analyses. The modeling included a maximum of 60 minutes of testing emissions for 24-hour $PM_{10}$ and 24-hour $PM_{2.5}$. For all other short-term standards, the maximum hourly emission rates for each engine were modeled. For annual standards, the maximum annual emissions were modeled for all pollutants.

For the modeling conducted for the emergency engines, the sources were modeled as point sources with vertical exhausts and with exhaust parameter values (i.e., exit velocities, diameters, and temperatures) properly identified to calculate the buoyancy and momentum rise of their emissions. The stack parameter values were based on engineering design information or/and stack test reports.

**Parameters for Point Sources**

| Stack ID | Description | Height feet | Temp $^{o}$F | Exit Velocity ft/sec | Stack Diameter feet |
|---|---|---|---|---|---|
| MELTBH | Meltshop Baghouse Stack (High flow) | 117.5 | 140 | 47.94 | 18.08 |
| | Meltshop Baghouse Stack (Low flow) | 117.5 | 140 | 31.50 | 18.08 |
| CASTERVENT | Caster Vent (each of six stacks) | 117.4 | 136 | 10.37 | 16.01 |
| CASTSPRAY | Caster Spray Chamber Stack | 50 | 140 | 58.33 | 1.51 |
| COOLTOWER1 | Cooling Tower 1 (each of two stacks) | 25 | Ambient | 20.41 | 12.0 |
| COOLTOWER2 | Cooling Tower 2 (each of two stacks) | 30 | Ambient | 18.94 | 24.0 |
| COOLTOWER3 | Cooling Tower 3 (each of two stacks) | 30 | Ambient | 18.94 | 24.0 |
| FLUXSILO1 | Fluxing Agent Storage Silo 1 | 68 | Ambient | 0.0033 | 0.50 |
| FLUXSILO2 | Fluxing Agent Storage Silo 2 | 68 | Ambient | 0.0033 | 0.50 |
| CARBSILO1 | Carbon Storage Silo | 53.5 | Ambient | 0.0033 | 0.50 |
| DUSTSILO1 | Baghouse Dust Storage Silo | 108 | Ambient | 0.0033 | 0.50 |
| ENG-GEN1 | Emergency Generator 1 | 30 | 600 | 29.58 | 0.75 |
| ENG-GEN2 | Emergency Generator 2 | 30 | 600 | 99.83 | 0.67 |
| ENG-FWP1 | Fire Water Pump | 30 | 600 | 19.56 | 0.58 |

**Stack Emission Rates**

| Stack ID | Description | $NO_X$ (lb/hr) | CO (lb/hr) | $SO_2$ (lb/hr) | $PM_{10}$ / $PM_{2.5}$ (lb/hr) |
|---|---|---|---|---|---|
| MELTBH | Meltshop Baghouse Stack | 30.00 | 400.00 | 60.00 | 13.371 |
| CASTERVENT | Caster Vent (each of eight pseudo-stacks) | 0.487 | 0.655 | 0.034 | 0.260 |
| CASTSPRAY | Caster Spray Chamber Stack | 0.018 | 0.394 | 0.062 | 0.264 ($PM_{2.5}$)<br>0.265 ($PM_{10}$) |
| COOLTOWER1 | Cooling Tower 1 (each of two stacks) | -- | -- | -- | 0.041 |
| COOLTOWER2 | Cooling Tower 2 (each of two stacks) | -- | -- | -- | 0.055 |
| COOLTOWER3 | Cooling Tower 3 (each of two stacks) | -- | -- | -- | 0.055 |
| FLUXSILO1 | Fluxing Agent Storage Silo 1 | -- | -- | -- | 0.257 |
| FLUXSILO2 | Fluxing Agent Storage Silo 2 | -- | -- | -- | 0.257 |
| CARBSILO1 | Carbon Storage Silo | -- | -- | -- | 0.176 |
| DUSTSILO1 | Baghouse Dust Storage Silo | -- | -- | -- | 0.111 |
| ENG-GEN1 | Emergency Generator 1* | 1.84 | 1.726 | 0.0036 | 0.099 |
| ENG-GEN2 | Emergency Generator 2* | 15.77 | 9.206 | 0.018 | 0.529 |
| ENG-FWP1 | Fire Water Pump* | 0.736 | 0.987 | 0.0015 | 0.058 |

*intermittent operation.

**Off-Site Emission Source Inventory for the Modeling Analyses**

For full impact modeling analysis, contributions from nearby sources and other sources were accounted for using existing ambient air monitoring data and the inclusion of nearby off-property sources.

*Nearby Sources in Oklahoma Included in the NAAQS Analysis*

In accordance with AQD guidance, an inventory of nearby sources located in Oklahoma was obtained from the AQD staff. Sources provided in the inventory, which the AQD expects to have the potential to contribute significantly to modeling results, were included in the full impact modeling analysis.

Sources with horizontal releases were modeled with pseudo-point parameter values.

*Nearby Sources in Oklahoma Included in the PSD Increment Consumption Analysis*

The off-property inventory prepared for the NAAQS analysis was utilized in the PSD Increment consumption analysis for all pollutants except $PM_{2.5}$. $PM_{2.5}$ Increment is consumed only by: (1) new or modified $PM_{2.5}$-major sources which began construction after the major source baseline date of October 20, 2010 and (2) new or modified minor sources which began operation after the minor source baseline date. Since the exact permitted dates are not available in the off-property database, all major sources permitted since January 1, 2010, were included in the PSD Increment consumption analysis. All minor sources which have been permitted since January 1, 2011, were included in the PSD Increment consumption analysis.

*Nearby Sources in Texas Considered for Inclusion in the NAAQS Analysis*

The Texas Commission on Environmental Quality (TCEQ) provides an inventory of non-project emission sources located in Texas known as Air Permits Allowable Database (APAD). A listing of nearby sources located in Texas was obtained using TCEQ APAD system. AQD staff provided an inventory of all Oklahoma sources that may have significant contributions to the modeling results. The furthest AQD-provided sources are located 26 km from the project site. A review of the Texas source inventory indicates that all Texas sources are located at a distance greater than 28 km from the proposed Steel Mill site. Based on the emission rates and distances to these sources, Texas off-property sources are not expected to have any significant contributions to the modeling results. Therefore, Texas off-property sources were not included in the full impact modeling analyses.

**Pre-Construction Monitoring Issues**

The *Draft New Source Review Workshop Manual - Prevention of Significant Deterioration and Nonattainment Area Permitting*, (USEPA, October 1990, page C.16) states that continuous ambient monitoring data may be required unless "either (1) the predicted ambient impact, i.e., the highest modeled concentration for the applicable averaging time, caused by the proposed significant emissions increase (or significant net emissions increase), or (2) the existing ambient pollutant concentrations are less than the prescribed significant monitoring value" (i.e., the SMC value).

The proposed project will emit PSD-significant amounts of $NO_2$, $SO_2$, CO, $PM_{2.5}$, and $PM_{10}$. Ambient air monitoring data that offer conservatively representative estimates of the background concentrations of these criteria pollutants in the area are available from the North OKC and Sequoyah County monitoring stations, which are operated by the AQD. Therefore, CMC has utilized these monitoring data in lieu of performing pre-construction monitoring for any pollutant with preliminary impacts analysis results greater than the SMC values.

**Representative Monitoring Sites**

Background ambient air concentration data may be required in the NAAQS compliance demonstration analyses for $NO_2$, CO, $PM_{2.5}$, $PM_{10}$, and $SO_2$. CMC has utilized existing ambient air quality monitoring data to establish background concentrations for these contaminants. No ambient air quality monitoring data are reported for Bryan County in regulatory agency databases, and CMC is not aware of the existence of any other sources of ambient air quality monitoring data for the county. Based on discussions with AQD staff, CMC utilized data collected at the following monitor stations to establish conservatively representative background concentrations to be used in the NAAQS compliance demonstrations:

- Oklahoma Christian University (OKC North), EPA ID 48-109-1037 for CO, $SO_2$, $PM_{10}$, and $PM_{2.5}$.
- Sequoyah County, EPA ID 48-135-0014) for $NO_2$.

AQD guidance (*ADMG*, Table 2.2.7) was followed in calculating the form of the required monitoring data concentrations. The proposed background concentrations and their corresponding forms are summarized in the following table.

| Pollutant | Monitor Site | Monitor Site City | Averaging Period | Concentrations ug/$m^3$ | Form |
|---|---|---|---|---|---|
| NOx | Sequoyah County | Roland | 1-hour | 56.6 | 3-year average, 98$^{th}$ percentile of 1-hour daily maxima, 2012-2014 |
| | | | Annual | 13.5 | Annual average 2014 |
| CO | North OKC | Oklahoma City | 1-hour | 1,030 | 2$^{nd}$ high 2014 |
| | | | 8-hour | 801 | 2$^{nd}$ high 2014 |
| $SO_2$ | North OKC | Oklahoma City | 1-hour | 9.6 | 3-year average, 98$^{th}$ percentile of 1-hour daily maxima, 2012-2014 |
| | | | 3-hour | 0.2 | 2$^{nd}$ high 2014 |
| $PM_{10}$ | North OKC | Oklahoma City | 24-hour | 73.0 | 4$^{th}$ high, 2012-2014 |
| $PM_{2.5}$ | North OKC | Oklahoma City | 1-hour | 20.9 | 3-year average, 98$^{th}$ percentile of 1-hour daily maxima, 2012-2014 |
| | | | Annual | 9.2 | 3-year average, 1$^{st}$ high, 2012-2014 |

**Land Use**

The steel mill will be located in a rural area approximately 4 km (2.5 miles) southeast of Durant. The area surrounding the steel mill is mostly open land which is relatively uniform in terms of its land use, vegetative cover, and terrain variability. The AQD *ADMG*-recommended procedure was followed to determine urban/rural classification using the Auer land use technique. The land use within the total area circumscribed by a 3-km radius circle around the facility was classified using the Auer land types. If the urban land use types I1, I2, C1, R2 and R3 account for 50 percent or more of the area, then urban dispersion coefficients should be used. Otherwise, rural dispersion coefficients should be used in the modeling analysis. The land use analysis clearly showed that greater than 50 percent of the land classified around the steel mill is rural. Therefore, rural dispersion coefficients were used in the AQA.

**Receptor Grids**

*Grid for the NAAQS and PSD Increment Analyses for Class II Areas*

The receptor grids used in the preliminary and full impacts modeling analyses followed the guidelines provided by the AQD in its *ADMG*. The 1983 North American Datum (NAD83) was used for the receptor UTM coordinates. Providence/ORIS, LLC's "BEE-Line BEEST for Windows" was used to calculate the appropriate domain boundaries. The receptor coverage utilized for the preliminary impacts analyses consisted of the following:

- Receptors spaced 100 meters apart, extending to 1,000 meters from the fence line
- Receptors spaced 100 meters apart, extending to 1,000 meters from areas of maximum predicted concentrations
- Receptors spaced 250 meters apart, extending to 2,500 meters from the fence line
- Receptors spaced 500 meters apart, extending to 5,000 meters from the fence line
- Receptors spaced 750 meters apart, extending to 7,500 meters from the fence line
- Receptors spaced 1,000 meters apart, extending to 10,000 meters from the fence line.

CMC has ensured that these receptor grids are designed to capture the maximum off-property ground-level concentrations for all pollutants and review types.

The full receptor grid was also be modeled for all pollutants in the full impact NAAQS and PSD Increment consumption compliance demonstration analyses. In the full impact analyses for the 1-hour $NO_2$ and 1-hour $SO_2$ NAAQS demonstrations, modeling was limited to receptors with preliminary analysis concentrations greater than or equal to the respective SILs.

*Grid for the PSD Increment Analysis for Class I Areas*
An Increment consumption analysis was conducted for Class I areas located within 300 km from the Steel Mill site. There are two PSD Class I areas located within 300 km of the proposed steel mill: Caney Creek Wilderness in Arkansas and Wichita Mountains Wilderness in Oklahoma.

In accordance with the AQD's Tier 1 modeling procedure, polar grid receptors were placed in the direction of both these Class I areas. The polar grid receptors were placed at distances of 10 km, 20 km, 30 km, 40 km, and 50 km from the project site location.

**Meteorological Data**
Current AQD procedures were followed concerning the use of meteorological data for AERMOD modeling for sources located in Bryan County. The AQD has created preprocessed meteorological data sets using AERMET for use in AERMOD air dispersion modeling. The air dispersion modeling for the steel mill project was performed using AERMOD-ready meteorological data for Bryan County made available and approved through the AQD staff. For Bryan County, meteorological data are prepared using Mesonet data from Durant, Oklahoma (Station Number 33, Code DURA) and upper air data from Fort Worth, Texas (National Weather Service (NWS) Station Number 03990).

Five years of representative NWS meteorological data were used (currently prescribed by the AQD to be 2006 through 2010). The base elevation for the Durant station is 197 meters.

**Modeling Results**
Guidance from the EPA's *Guidance on Air Quality Models* (40 CFR Part 51, Appendix W) was followed in selecting the predicted concentrations used to determine compliance with the NAAQS and PSD Increment consumption limits. Applicable ambient air standards, limits and screening levels as well as concentrations predicted by modeling are summarized in the following section.

*PSD Class II Area Results*

Significant Impact Level Analysis Results

This modeling was conducted based on proposed allowable emissions to determine whether full impacts modeling is required. The predicted ground-level concentrations and their corresponding SILs are summarized in the following table.

**SIL Analysis**

| Pollutant | Averaging Period | Form | Maximum Predicted Concentration at Any Receptor, ug/m$^3$ | SIL ug/m$^3$ |
|---|---|---|---|---|
| $NO_2$ | 1-hour | 5-year average of 1st high | 33.4 | 7.5 |
| | Annual | 1st high of 5 years | 0.80 | 1 |
| CO | 1-hour | 1st high of 5 years | 461 | 2,000 |
| | 8-hour | 1st high of 5 years | 265 | 500 |
| $SO_2$ | 1-hour | 5-year average of 1st high | 49.9 | 7.8 |
| | 3-hour | 1st high of 5 years | 51.0 | 25 |
| | 24-hour | 1st high of 5 years | 20.5 | 5 |
| | Annual | 1st high of 5 years | 0.61 | 1 |
| $PM_{10}$ | 24-hour | 1st high of 5 years | 34.0 | 5 |
| | Annual | 1st high of 5 years | 2.2 | 1 |
| $PM_{2.5}$ (NAAQS) | 24-hour | 5-year average of 1st high | 8.9 | 1.2 |
| | Annual | 5-year average of the weighted annual averages | 1.1 | 0.3 |
| $PM_{2.5}$ (Increment) | 24-hour | 1st high of 5 years | 11.6 | 1.2 |
| | Annual | 1st high of 5 years | 1.3 | 0.3 |

The predicted annual $NO_2$, annual $SO_2$, 1-hour CO and 8-hour CO concentrations are less than their respective SILs. Therefore, in accordance with EPA and AQD guidance, no additional modeling is required to demonstrate compliance with the applicable NAAQS and/or PSD Increments for these pollutant-averaging period combinations.

The predicted 1-hour $NO_2$, 1-hour $SO_2$, 3-hour $SO_2$, 24-hour $SO_2$, 24-hour $PM_{10}$, annual $PM_{10}$, 24-hour $PM_{2.5}$, and annual $PM_{2.5}$ concentrations are greater than the SIL. Therefore, full impact modeling analyses were conducted for these pollutant-averaging period combinations.

PSD Ambient Monitoring Data Analysis Results

This modeling was conducted for the proposed allowable emissions to determine whether the project is exempt from the ambient pre-construction monitoring requirements. The predicted ground-level concentrations and SMCs are summarized in the following table.

| Pollutant | Averaging Period | Form | Maximum Predicted Concentration at Any Receptor, ug/m$^3$ | SMC ug/m$^3$ |
|---|---|---|---|---|
| $NO_2$ | Annual | 1st High of 5 Years | 0.80 | 14 |
| CO | 8-hour | 1st High of 5 Years | 265 | 575 |
| $SO_2$ | 24-hour | 1st High of 5 Years | 20.5 | 13 |
| $PM_{2.5}$ | 24-hour | 1st High of 5 Years | 11.6 | 0 |
| $PM_{10}$ | 24-hour | 1st High of 5 Years | 34.0 | 10 |

The predicted $NO_2$ and CO concentrations are less than the applicable SMC; therefore, ambient air monitoring data are not required to be compiled for these pollutants. The predicted $PM_{10}$ and $SO_2$ concentrations are greater than the applicable SMC; accordingly, ambient air monitoring data are required to be compiled for these pollutants. Because there is no SMC for $PM_{2.5}$, ambient air monitoring data were compiled for $PM_{2.5}$.

For the analyses documented in this report, CMC used $SO_2$, $PM_{10}$ and $PM_{2.5}$ monitoring data collected at the ADQ-operated monitoring stations in lieu of collecting site-specific monitoring data.

Full Impact Analysis Results – NAAQS

The ambient air impacts resulting from the proposed steel mill emissions were predicted to be above the respective SILs for 1-hour $NO_2$, 1-hour $SO_2$, 24-hour $PM_{10}$, 24-hour $PM_{2.5}$, and annual $PM_{2.5}$; therefore, a refined modeling analysis assessing cumulative impact contributions from non-project sources was conducted to demonstrate compliance with each standard.

The predicted ground-level concentrations from the full impacts NAAQS modeling, the background concentrations for the project area and the sum of the two values are summarized in the following table. The predicted total concentration is conservative because the background concentration includes contributions from the modeled sources (i.e. existing sources are being double-counted). The total impact is compared to the NAAQS.

| Pollutant | Averaging Period | Maximum Predicted Concentration at any Receptor ug/m$^3$ | Background Concentration ug/m$_3$ | Total Concentration ug/m$^3$ | NAAQS[1] ug/m$^3$ |
|---|---|---|---|---|---|
| $NO_2$ | 1-hour | 33.4 | 56.6 | 90.0 | 188 |
| $SO_2$ | 1-hour | 52.8 | 9.6 | 62.4 | 196 |
| | 3-hour | 92.0 | 0.2 | 92.2 | 1,300 |
| $PM_{2.5}$ | 24-hour | 8.6 | 20.9 | 29.5 | 35 |
| | Annual | 1.33 | 9.2 | 10.5 | 12 |
| $PM_{10}$ | 24-hour | 24.0 | 73.0 | 97.0 | 150 |

[1] These values are Primary NAAQS, which are identical to or more stringent than the Secondary NAAQS.

The predicted total concentrations are less than the NAAQS for all pollutants and averaging periods.

The form of the predicted ground-level concentrations and the background concentrations are summarized in the following table.

| **Pollutant** | **Averaging Period** | **Maximum Predicted Concentrations at Any Receptor ug/m$^3$** | **Background Concentrations ug/m$^3$** | **NAAQS ug/m$^3$** |
|---|---|---|---|---|
| $NO_2$ | 1-hour | 5-year average of 98$^{th}$ percentile of the 1-hour daily maxima | 3-year average of 98$^{th}$ percentile of the 1-hour daily maxima 2012-2014 | 188 |
| $SO_2$ | 1-hour | 5-year average of 99$^{th}$ percentile of the 1-hour daily maxima | 3-year average of 99$^{th}$ percentile of the 1-hour daily maxima 2012-2014 | 196 |
| $PM_{2.5}$ | 24-hour | 5-year average of 98$^{th}$ percentile of the 24-hour averages | 3-year average of 98$^{th}$ percentile of the 24-hour averages 2012-2014 | 35 |
| | Annual | 5-year average of the weighted annual averages | 3-year average of the weighted annual averages | 12 |
| $PM_{10}$ | 24-hour | 6$^{th}$ high of 5 years | 4$^{th}$ high, 2012-2014 | 150 |

PSD Class II Increment Consumption Analysis Results

The ambient air impacts resulting from the proposed steel mill emissions were predicted to be above the respective SILs for 3-hour $SO_2$, 24-hour $SO_2$, 24-hour $PM_{10}$, annual $PM_{10}$, 24- hour $PM_{2.5}$, and annual $PM_{2.5}$ Class II Increments. Therefore, a full impacts analysis was performed for $PM_{2.5}$ and $PM_{10}$ emissions for comparison to the PSD Class II Increment consumption limits. The predicted ground-level concentrations and the PSD increment consumption limits are summarized in the following table.

**PSD Class II Increment Consumption Analysis**

| Pollutant | Averaging Period | Form | Maximum Predicted Concentrations at Any Receptor ug/m$^3$ | PSD Class II Increment Consumption Limit ug/m$^3$ |
|---|---|---|---|---|
| $SO_2$ | 3-hour | 2$^{nd}$ High of 5 Years | 92.0 | 512 |
| | 24-hour | 2$^{nd}$ High of 5 Years | 28.8 | 91 |
| $PM_{10}$ | 24-hour | 2$^{nd}$ High of 5 Years | 28.6 | 30 |
| | Annual | Highest Annual Average of 5 Years | 2.26 | 17 |
| $PM_{2.5}$ | 24-hour | 2$^{nd}$ High of 5 Years | 8.18 | 9 |
| | Annual | Highest Annual Average of 5 Years | 1.28 | 4 |

The predicted concentrations are less than the PSD increment consumption limits for both $PM_{10}$ and $PM_{2.5}$.

PSD Class I Increment Analysis Results

This modeling was conducted based on proposed allowable emissions to demonstrate that the predicted off-property concentrations do not exceed EPA Class I SILs. The predicted ground-level concentrations at a distance of 50 km in the direction of the Class I areas and their corresponding SILs are summarized in the following tables. The Class I Increment analysis results for the Caney Creek Wilderness area shows that the predicted concentrations for all pollutants are less than their respective SILs. Therefore, no additional modeling is required.

**SIL Analysis – PSD Class I Increment Consumption in the Caney Creek Wilderness**

| Pollutant | Averaging Period | Form | Maximum Predicted Concentrations at 50 Km from the Project ug/m$^3$ | SIL ug/m$^3$ |
|---|---|---|---|---|
| $NO_2$ | Annual | 1$^{st}$ high of 5 years | 0.002 | 0.1 |
| $SO_2$ | 3-hour | 1$^{st}$ high of 5 years | 0.49 | 1.0 |
| | 24-hour | 1$^{st}$ high of 5 years | 0.12 | 0.2 |
| | Annual | 1$^{st}$ high of 5 years | 0.003 | 0.1 |
| $PM_{10}$ | 24-hour | 1$^{st}$ high of 5 years | 0.07 | 0.3 |
| | Annual | 1$^{st}$ high of 5 years | 0.002 | 0.2 |
| $PM_{2.5}$ | 24-hour | 1$^{st}$ high of 5 years | 0.05 | 0.07 |
| | Annual | 1$^{st}$ high of 5 years | 0.002 | 0.06 |

The Class I Increment analysis results for the Wichita Mountain Wilderness shows that the predicted 24-hour $PM_{2.5}$ and 24-hour $SO_2$ concentrations slightly exceed their respective SILs. For all other pollutants, the predicted concentrations are less than their respective SILs.

**SIL Analysis – PSD Class I Increment Consumption in the Wichita Mountains Wilderness**

| Pollutant | Averaging Period | Form | Maximum Predicted Concentrations at 50 Km from the Project ug/m$^3$ | SIL ug/m$^3$ |
|---|---|---|---|---|
| $NO_2$ | Annual | 1st high of 5 years | 0.006 | 0.1 |
| $SO_2$ | 3-hour | 1st high of 5 years | 1.00 | 1.0 |
| | 24-hour | 1st high of 5 years | 0.27 | 0.2 |
| | Annual | 1st high of 5 years | 0.012 | 0.1 |
| $PM_{10}$ | 24-hour | 1st high of 5 years | 0.13 | 0.3 |
| | Annual | 1st high of 5 years | 0.008 | 0.2 |
| $PM_{2.5}$ | 24-hour | 1st high of 5 years | 0.11 | 0.07 |
| | Annual | 1st high of 5 years | 0.007 | 0.06 |

For the 24-hour $PM_{2.5}$ and 24-hour $SO_2$ Increments,, a concentration gradient analysis was conducted to demonstrate that the concentrations at the Class I area will not exceed SILs. The following table shows the concentration gradient analysis for $PM_{2.5}$ and $SO_2$. The table shows that for both 24-hour $PM_{2.5}$ and 24-hour $SO_2$, there is a gradual decrease in the predicted concentrations from 10 km to 50 km. Wichita Mountains Wilderness area is located 230 km northwest of the project site. Based on the concentration gradient analysis, it is anticipated that the predicted concentrations for both 24-hour $PM_{2.5}$ and 24-hour $SO_2$ will not exceed SILs at the Class I area. Therefore, no additional modeling is necessary for any pollutants.

**Concentration Gradient Analysis - Wichita Mountains Wilderness**

| Distance km | Maximum 24-hour $PM_{2.5}$ Predicted Concentrations Downwind of the Project ug/m$^3$ | Maximum 24-hour $SO_2$ Predicted Concentrations Downwind of the Project ug/m$^3$ |
|---|---|---|
| 10 | 0.67 | 0.62 |
| 20 | 0.28 | 0.40 |
| 30 | 0.17 | 0.31 |
| 40 | 0.13 | 0.46 |
| 50 | 0.11 | 0.27 |

## SECTION VII. ADDITIONAL PSD IMPACTS ANALYSES

Additional impact analyses were conducted to assess impacts on visibility, soils, and vegetation, including impacts on visiiblity in PSD Class I areas, that would occur as a result of operation of the new facility and any commercial, residential, industrial, and other growth associated with the facility. These analyses are discussed in the following sections.

### Growth Analysis

An in-depth growth analysis is only required if the project would result in a significant shift in population and associated activity into the area (i.e., a population increase on the order of thousands of people). Employment within this area (i.e., within the modeling domain) will not significantly increase as a result of the project. Also, there will not be any significant impacts due to any changes in the population size or density, or changes in the type of development in the area. Therefore, possible adverse growth-related impacts from the project are not expected.

### Soil and Vegetation Analysis

The Primary NAAQS set limits to protect public health, with an adequate margin of safety. "Public health" is defined to include the health of "sensitive" populations such as asthmatics, children and the elderly. The Secondary NAAQS set limits to protect public welfare from any known or anticipated adverse effects associated with the presence of such a pollutant. "Public welfare" includes, but is not limited to, protection against decreased visibility and damage to animals, crops, soils, vegetation and buildings.

As demonstrated by the modeling predictions, the project's emissions will not result in exceedance of any Primary or Secondary NAAQS. Therefore, the project's emissions are not expected to adversely affect any soils or vegetation within the area (i.e., the modeling domain).

### Visibility Analysis

*Class I Area Impact Assessment*

An impact analysis may be required on any PSD Class I areas located within 300 km from the project site. Based on the *Federal Land Managers' (FLMs') Air Quality Related Work Group (FLAG) Report, Revised 2010*, Class I area evaluations for visibility and air quality related values (AQRVs) are not required for a facility if the "Q/D" ratio for the project is less than or equal to 10 (as long as the Class I area is beyond 50 km from the site). The Q in the Q/D ratio represents the total of the net emissions increases associated with the project in tons per year for the visibility-affecting pollutants: NOx, $SO_2$, PM, and sulfuric acid mist ($H_2SO_4$). The D in the Q/D ratio represents the distance in km from the project site to the Class I area. If the value of the Q/D ratio is less than 10, it is expected that no further review will be required by the FLM with jurisdiction.

There are two Class I areas located within 300 km of the proposed steel mill. The nearest Class I area is Caney Creek Wilderness in Arkansas, which is located over of 205 km northeast of the proposed steel mill site. The second Class I area is Wichita Mountains Wilderness in Oklahoma, which is located 230 km northwest of the project site.

The "Q/D" ratio analysis for Caney Creek Wilderness in Arkansas and Wichita Mountains Wilderness in Oklahoma is presented in the following table. The "Q/D" ratio for the proposed steel mill is less than 10 for both Class I areas; therefore, no further review is required.

**Q/D Analysis**

| Class I Area | Distance (D), km | Q/D Value |
|---|---|---|
| Caney Creek Wilderness | 205 | 1.9 |
| Wichita Mountains Wilderness | 230 | 1.7 |

*Class II Area Impact Assessment*

Visibility impacts resulting from the project emissions that could occur in the most sensitive PSD Class II area in the vicinity of the proposed steel mill, i.e., Tishomingo Wildlife Refuge near Tishomingo, Oklahoma, were assessed using the EPA's VISCREEN model in accordance with AQD guidance and the EPA's *Workbook for Plume Visual Impact Screening and Analysis* (EPA, 1992). Tishomingo Wildlife Refuge is located at a distance of 28 km from the steel mill site.

The AQD's guidance for determining visibility impacts in a Class II area sets values for visibility parameter screening levels at 6.0 for relative sensitivity, ΔE, and 0.15 for absolute contrast. The first parameter, ΔE, represents the perceptibility of a plume on the basis of the color difference between the plume and a viewing background, such as the light-colored sky, or a darker terrain feature. The second parameter, contrast, represents the difference in light intensity between a given object and the surrounding objects that is caused by the plume.

The VISCREEN modeling results summarized in the following table present estimates of ΔE and absolute contrast against both sky and terrain backgrounds.

**VISCREEN Results for Visibility Impacts in Tishomingo Wildlife Refuge**

| Background | Theta | Azimuth | Distance (km) | Alpha | Relative Sensitivity Value (Delta-E) | | Absolute Contrast Value | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Screening Criteria | Plume | Screening Criteria | Plume |
| Sky | 10 | 84 | 28 | 84 | 6 | 0.483 | 0.15 | 0.004 |
| Sky | 140 | 84 | 28 | 84 | 6 | 0.144 | 0.15 | -0.003 |
| Terrain | 10 | 84 | 28 | 84 | 6 | 0.335 | 0.15 | 0.004 |
| Terrain | 150 | 84 | 28 | 84 | 6 | 0.06 | 0.15 | 0.003 |

The results of VISCREEN for relative sensitivity and absolute green contrast do not exceed the Class II screening levels. Therefore, emissions from the project are not expected to adversely impact visibility in Tishomingo Wildlife Refuge.

## SECTION VIII. FEDERAL REGULATIONS

PSD, 40 CFR Part 52 [Applicable]

Potential emissions for $NO_X$, CO, VOC, and $PM_{10}$, are greater than the level of significant emission rates for this source category. Full PSD review was conducted in accordance with Part 7 of OAC 252:100-8.

NSPS, 40 CFR Part 60 [Applicable]

Subpart AAa applies to Electric Arc Furnaces (EAF) in the Steel Industry which are installed or modified after September 17, 1983. Discharges from EAFs are limited to 0.0052 gr/DSCF and 3% opacity. Shops containing affected facilities are limited to 6% opacity, and dust-handling systems are limited to 10% opacity. A COMS is required on the baghouse unless the operator (1) conducts daily Method 9 VE readings, or (2) installs bag leak detectors.

Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, affects stationary compression ignition (CI) internal combustion engines (ICE) based on power and displacement ratings, depending on date of construction, beginning with those constructed after July 11, 2005. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator. The two emergency generators and fire pump are subject to standards for emergency use engines.

NESHAP, 40 CFR Part 61 [Not Applicable]

There are no emissions of any of the regulated pollutants: arsenic, asbestos, beryllium, coke oven emissions, radionuclides or vinyl chloride. The facility emits mercury and benzene but it is not one of the applicable sources and is, therefore, exempt from this part.

NESHAP,40 CFR Part 63 [Subparts ZZZZ and YYYYY Are Applicable]

Subpart XXX (Ferromanganese and Silicomanganese Alloys). This facility will not produce products with this composition.

Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE). This subpart previously affected only RICE with a site-rating greater than 500 brake horsepower that are located at a major source of HAP emissions. On January 18, 2008, the EPA published a final rule that promulgates standards for new and reconstructed engines (after June 12, 2006) with a site rating less than or equal to 500 HP located at major sources, and for new and reconstructed engines (after June 12, 2006) located at area sources. Owners and operators of new or reconstructed engines at area sources and of new or reconstructed engines with a site rating equal to or less than 500 HP located at a major source (except new or reconstructed 4-stroke lean-burn engines with a site rating greater than or equal to 250 HP and less than or equal to 500 HP located at a major source) must meet the requirements of Subpart ZZZZ by complying with either 40 CFR Part 60 Subpart IIII (for CI engines) or 40 CFR Part 60 Subpart JJJJ (for SI engines).

Subpart EEEEE (Iron and Steel Foundries). This subpart was promulgated on April 22, 2004. Subpart EEEEE affects only foundry operations at major sources of HAPs; the CMC facility is not a foundry or major HAPs source, and is an "area" source.

Subpart YYYYY (Electric Arc Furnaces: Area Sources). This subpart was promulgated on December 28, 2007. The operator is required to follow a pollution prevention plan to inspect scrap, removing chlorinated plastics, free organic materials, and lead; alternatively, the facility must not charge scrap from motor vehicle bodies, engine blocks, oil filters, oily turnings, machine shop borings, transformers or capacitors containing PCBs, lead-containing components, chlorinated plastics, or free organic liquids. Mercury switches must be removed from scrap before charging to the EAFs. Electric arc furnaces and argon-oxygen decarburation vessels are limited to 0.0052 gr/DSCF PM and 6% opacity. The BACT requirements are more stringent than these area source MACT standards.
Subpart JJJJJJ, Industrial, Commercial, and Institutional Boilers. This MACT was re-proposed on December 2, 2011. The new proposal does not affect the gas-fired heaters.

Compliance Assurance Monitoring, 40 CFR Part 64 [Applicable]
Compliance Assurance Monitoring, as published in the Federal Register on October 22, 1997, applies to any pollutant specific emission unit at a major source, that is required to obtain a Title V permit, if it meets all the following criteria:

- It is subject to an emission limit or standard for an applicable regulated air pollutant.
- It uses a control device to achieve compliance with the applicable emission limit or standard.
- It has potential emissions, prior to the control device, of the applicable regulated air pollutant greater than major source thresholds.

Baghouse particulate control devices are used on the EAF and Continuous Caster. The baghouses on the EAF have potential pre-control device emissions exceeding the applicability threshold and are subject to this part, but have controlled emission limits less than the major source threshold and are not "large pollutant-specific emissions units". CAM plans are required at operating permit renewal. The EAF baghouse is on units which are subject to a MACT and an NSPS which specifies acceptable monitoring, therefore are not subject to CAM. The potential uncontrolled emission from the caster operations does not exceed the applicability threshold.

Chemical Accident Prevention Provisions, 40 CFR Part 68 [Not Applicable]
This facility does not store any regulated substance above the applicable threshold limits. More information on this federal program is available at the web site: *http://www.epa.gov/ceppo/*. An analysis will be done after the design of the new furnaces is finalized to determine if the CMC facility will store any of the listed chemicals or substances at quantities near or above the threshold levels.

Stratospheric Ozone Protection, 40 CFR Part 82 [Subpart A and F Applicable]
These standards require phase out of Class I & II substances, reductions of emissions of Class I & II substances to the lowest achievable level in all use sectors, and banning use of nonessential products containing ozone-depleting substances (Subparts A & C); control servicing of motor vehicle air conditioners (Subpart B); require Federal agencies to adopt procurement regulations which meet phase out requirements and which maximize the substitution of safe alternatives to Class I and Class II substances (Subpart D); require warning labels on products made with or containing Class I or II substances (Subpart E); maximize the use of recycling and recovery upon disposal (Subpart F); require producers to identify substitutes for ozone-depleting compounds under the Significant New Alternatives Program (Subpart G); and reduce the emissions of halons (Subpart H).

Subpart A identifies ozone-depleting substances and divides them into two classes. Class I controlled substances are divided into seven groups; the chemicals typically used by the manufacturing industry include carbon tetrachloride (Class I, Group IV) and methyl chloroform (Class I, Group V). A complete phase-out of production of Class I substances is required by January 1, 2000 (January 1, 2002, for methyl chloroform). Class II chemicals, which are hydrochlorofluorocarbons (HCFCs), are generally seen as interim substitutes for Class I CFCs. Class II substances consist of 33 HCFCs. A complete phase-out of Class II substances, scheduled in phases starting by 2002, is required by January 1, 2030.

This facility does not utilize any Class I & II substances.

## SECTION IX. OKLAHOMA AIR POLLUTION CONTROL RULES

OAC 252:100-1 (General Provisions) [Applicable]
Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]
This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations. These requirements are addressed in the "Federal Regulations" section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]
Subchapter 3 enumerates the primary and secondary ambient air quality standards and the significant deterioration increments. The primary standards are enumerated in Appendix E and the secondary standards are enumerated in Appendix F of the Air Pollution Control Rules (OAC 252:100). National Ambient Air Quality Standards (NAAQS) are established by the U.S. EPA. The actual ambient air concentration of criteria pollutants are monitored within the State of Oklahoma by ODEQ's Air Quality Division. At this time, all of Oklahoma is in "attainment" of these standards. Also, the above analysis indicates that the added emissions from the facility will not cause an exceedance of these standards

OAC 252:100-5 (Registration, Emission Inventory, and Annual Fees) [Applicable]
The owner or operator of any facility that is a source of air emissions shall submit a complete emission inventory annually on forms obtained from the AQD.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]
Part 7 includes the requirements for PSD Requirements for Attainment Areas. The furnace project is considered a "Major Modification" since the net emissions increase of criteria pollutants exceeds the significance thresholds. Part 7 is applicable to CO, $NO_X$, $SO_2$, VOC, GHG, and $PM_{10}$ / $PM_{2.5}$. As such, a BACT analysis (252:100-8-34), air quality impact analysis (252:100-8-35), and Class I area impact analysis (252:100-8-36) were required.
Part 5 includes the general administrative requirements for Part 70 permits. Any planned changes in the operation of the facility which result in emissions not authorized in the permit and which exceed the "Insignificant Activities" or "Trivial Activities" thresholds require prior notification to AQD and may require a permit modification. Insignificant activities mean individual emission units that either are on the list in Appendix I (OAC 252:100) or whose actual calendar year emissions do not exceed the following limits:

- 5 TPY of any one criteria pollutant, or
- 2 TPY of any one HAP or 5 TPY of multiple HAP or 20 percent of any threshold less than 10 TPY for single HAP that the EPA may establish by rule.

This facility meets the definition of a major source since it has the potential to emit regulated pollutants in excess of 100 TPY. As such, a Title V operating permit is required. Emission limitations for all the sources are taken from the permit application and previous permit.

OAC 252:100-9 (Excess Emissions Reporting Requirements) [Applicable]
Except as provided in OAC 252:100-9-7(a)(1), the owner or operator of a source of excess emissions shall notify the Director as soon as possible but no later than 4:30 p.m. the following working day of the first occurrence of excess emissions in each excess emission event. No later than thirty (30) calendar days after the start of any excess emission event, the owner or operator of an air contaminant source from which excess emissions have occurred shall submit a report for each excess emission event describing the extent of the event and the actions taken by the owner or operator of the facility in response to this event. Request for affirmative defense, as described in OAC 252:100-9-8, shall be included in the excess emission event report. Additional reporting may be required in the case of ongoing emission events and in the case of excess emissions reporting required by 40 CFR Parts 60, 61, or 63.

OAC 252:100-19 (Particulate Matter) [Applicable]
This subchapter specifies maximum allowable emissions of particulate matter (PM) based on rated heat input. All fuel-burning units are in compliance with their applicable limits. The application requested that the capacities be kept confidential. The size and resultant PM emissions have been reviewed and concurred to comply with Subchapter 19.
This subchapter also specifies the allowable rates of emissions from industrial processes based on process rate. The application requested that the process rates be kept confidential. The process rates and resultant PM emissions have been reviewed and concurred to comply with Subchapter 19.

OAC 252:100-25 (Visible Emissions and Particulates) [Applicable]
No discharge of greater than 20 percent opacity is allowed except for short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60 percent opacity. Units subject to an opacity standard under NSPS or NESHAP are exempt from this subchapter, including the two EAFs and the LMF.

OAC 252:100-29 (Fugitive Dust) [Applicable]
No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. The primary sources of fugitive dust are unpaved roads and slag processing. This permit also requires that reasonable precautions be taken to minimize fugitive dust.

OAC 252:100-31 (Sulfur Compounds) [Applicable]
Part 5 limits sulfur dioxide emissions from new fuel-burning equipment (constructed after July 1, 1972). For gaseous fuels the limit is 0.2 lb/MMBTU heat input averaged over 3 hours. For fuel gas having a gross calorific value of 1,000 BTU/SCF, this limit corresponds to fuel sulfur content of 1,203 ppmv. The permit requires the use of gaseous fuel with sulfur content less than 343 ppmv to ensure compliance with Subchapter 31. For liquid fuels for the emergency generator, Part 5 limits $SO_2$ emissions to 0.8 lb/MMBTU. Using diesel fuel with 0.05% by weight sulfur, $SO_2$ emissions will be 0.05 lb/MMBTU. This emission rate is in compliance with Subchapter 31.

OAC 252:100-33 (Nitrogen Oxides) [Applicable]
The rule affects NOx emissions from new fuel-burning equipment with a rated heat input of 50 MMBTUH or more. This facility has several fuel-burning units, but none exceeds the threshold: the 50 MMBTUH threshold.

OAC 252:100-35 (Carbon Monoxide) [Not Applicable]
This subchapter affects the following processes: foundry cupola, blast furnace, basic oxygen furnace, and catalytic cracking unit. The EAF furnace is not among the types of equipment regulated by Subchapter 35.

OAC 252:100-37 (Volatile Organic Compounds) [Applicable]
Part 3 requires new (constructed after December 28, 1974) storage tanks with a capacity between 400 and 40,000 gallons holding an organic liquid with a true vapor pressure greater than 1.5 psia to be operated with a submerged fill pipe. The diesel tank and caster lube oil tank have vapor pressures below the 1.5 psia threshold.
Part 5 limits the VOC content of paints and coatings. There are no coating lines at this facility.
Part 7 requires fuel-burning equipment to be operated and maintained so as to minimize emissions. Temperature and available air must be sufficient to provide essentially complete combustion. The permit will require compliance.

OAC 252:100-42 (Toxic Air Contaminants (TAC)) [Applicable]
This subchapter regulates toxic air contaminants (TAC) that are emitted into the ambient air in areas of concern (AOC). Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained, unless a modification is approved by the Director. Since no AOC has been designated there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping) [Applicable]
This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

**The following Oklahoma Air Pollution Control Rules are not applicable to this facility:**

| | | |
|---|---|---|
| OAC 252:100-8 Part 9 | Major Sources Affecting Nonattainment Areas | not in area category |
| OAC 252:100-15 | Mobile Sources | not in source category |
| OAC 252:100-17 | Incinerators | not type of emission unit |
| OAC 252:100-23 | Cotton Gins | not type of emission unit |
| OAC 252:100-24 | Grain Elevators | not in source category |
| OAC 252:100-29-2 | Fugitive Dust/Nonattainment Areas | not in area category |
| OAC 252:100-39 | Nonattainment Areas | not in area category |
| OAC 252:100-47 | Landfills | not in source category |

## SECTION X. COMPLIANCE

### Tier Classification & Public Review

This application has been determined to be a Tier III based on the request for a major source PSD construction permit.

The applicant published the "Notice of Filing a Tier II Application" in the *Durant Record* on July 30, 2015, a daily newspaper of general circulation in Bryan County. The notice said that the application was available for public review at the Durant Public Library or at the AQD office in Oklahoma City. A draft of this permit was also made available for public review for a period of thirty days as stated in another published announcement. The facility is located within 50 miles of the Oklahoma border with Texas; the state of Texas was notified of the draft permit. No comments were received from the adjacent state, but the Louisiana Environmental Action Network provided the following comments:

AQD received the following comments from the Louisiana Environmental Action Network on the draft permit:

**Comment No. 1:** Did Oklahoma review the modeling used by CMC? Can a copy of DEQ comments on the modeling be provided for the public to review? What was the justification for failure to use the latest AERMOD 15181 by the applicant? Did Oklahoma DEQ complete ozone impacts and modeling and can this information be made available for review by the public? It appears that CMC has not included all off site sources in the modeling data. It is important for public health to include these sources in calculations. An aerial map of the Durant area clearly shows other sources that have the potential to emit and should be included in the modeling data for the proposed CMC mill.

**AQD Response**

Yes, the modeling analysis provided by CMC was reviewed by the Air Quality Division (AQD). All communications between CMC and the AQD are available for public review as part of the Oklahoma Open Records Act (OORA) and can be obtained as part of a request under the OORA.

The original modeling analysis submittal was dated August 10, 2015, and contained modeling runs from August 7, 2015 to August 9, 2015. The updated modeling runs for $PM_{10}$ and $PM_{2.5}$ which were submitted on August 26, 2015, were run from August 19, 2015 to August 20, 2015.

The updates related to the current version of AERMOD (15181), which refers to the year and Julian date (June 30, 2015) of the model, were posted to the EPA scram web site on July 24, 2015. However, this version of the AERMOD model was not incorporated into the graphical user interfaces until later. Specifically, the Bee-Line update was released August 20, 2015. The previous modeling runs conducted by the applicant using the AERMOD (14134) version were not required to be revised using the AERMOD (15181) version since the original submittal was dated prior to the release of newest GUI utilizing AERMOD (15181). Also, a review of the changes incorporated into AERMOD (15181) summarized in "Model Change Bulletin #11" http://www.epa.gov/ttn/scram/models/aermod/AERMOD_MCB11_v15181.pdf did not indicate that the changes incorporated into AERMOD (15181) would substantially affect the modeling submitted by the applicant.

AQD modeling review was conducted using AERMOD (15181) and the results of the modeling analysis using AERMOD (15181) did not change the results of the modeling analysis submitted by the applicant.

EPA published a proposed revision to the Guideline on Air Quality Models, 40 CFR Part 51 Revision to the Guideline on Air Quality Models: Enhancements to the AERMOD Dispersion Modeling System and Incorporation of Approaches To Address Ozone and Fine Particulate Matter on July 29, 2015. The proposal clarifies the intended ozone analyses required in the PSD construction permit program and provides two tiers of review.

The first tier of assessment for ozone impacts involves those situations where existing technical information is available (e.g., results from existing photochemical grid modeling, published empirical estimates of source specific impacts, or reduced-form models) in combination with other supportive information and analysis for the purposes of estimating secondary impacts from a particular source.

The second tier of assessment for ozone impacts involves those situations where existing technical information is not available such that chemical transport models (e.g., photochemical grid models) should be used to address single-source impacts. Special considerations are needed when using these models to evaluate the ozone impact from an individual source.

While the application and review largely predate the published proposed guidance, our review was consistent with a tier one analysis. DEQ relied on an existing photochemical modeling database that is publicly available and in fact went through public review. New emission sources are added to the existing database and remodeled through the CAMx photochemical modeling system. The results are evaluated with and without the new source to arrive at an incremental ozone impact. For this permit, an evaluation was done by relying on a previous evaluation, which itself went through public review, for a significantly larger source in tons per year with a similar NOx/VOC ratio within the air shed. DEQ determined that even with emissions at the much larger rate of the reference facility, local ozone concentrations for the Durant facility would remain below the standard when added to the concentrations measured by the local monitor. That emissions were only a tenth of the evaluated reference facility, DEQ further determined that the proposed source would not cause or contribute to a violation of the National Ambient Air Quality Standards (NAAQS) and therefore no further analyses were warranted.

For issues related to inclusion of off-site sources please refer to LEAN comment/concern #4.

**Comment No. 2:** Confidentiality: It is troubling to see the extent of information that has been claimed as confidential by CMC. This information has been withheld from the public and it is trouble that Oklahoma has continued to protect this information from public review. Specifically, emissions data cannot be withheld and the EPA has included the information necessary to determine the identity, amount, frequency, concentration and other characteristics of emissions. This includes rate of operation and manner of operation of a source. It is important that this information be made available to ascertain the correctness of calculations and modeling data. At a minimum the basis for emissions factors and applicable rate and, where appropriate, control efficiency should be provided to the public for comparison with standards and operations at other similar facilities.

**AQD Response**

The ODEQ is bound by OK Statute 27A § 2-5-105(17) to "keep as confidential any information declared by the provider to be a trade secret… [T]o be so considered, [the information] must be plainly labeled by the provider, and be in a form whereby the confidential information may be easily removed intact without disturbing the continuity of any remaining documents. …" CMC labeled and submitted the application materials such that the designated trade secret information could be separated and protected.

*27A § 2-5-104(17) defines "trade secret" as follows:*

> *17. "Trade secret" means information, including but not limited to a formula, pattern, compilation, program, device, method, technique or process, that:*
>
> *a. derives independent economic value, actual or potential, from not being generally known to, and not being readily ascertainable by proper means by, other persons who can obtain economic value from its disclosure or use, and*
>
> *b. is the subject of efforts that are reasonable under the circumstances to maintain its secrecy. The term "trade secret" shall not be construed to include data concerning the amount, emission rate or identification of any air contaminant emitted by any source, nor shall it include the contents of any proposed or final permit.*

CMC has sought trade secret protection for how emissions data were derived and represent "formula, pattern, compilation, program, device, method, technique or process" information that is eligible for protection and considered "trade secrets." Inclusion of this data will indirectly result in equipment capacities and process rates being identified. Equipment capacities and process rates are commonly used by industry for competitive reasons. Therefore, AQD agrees that this data qualifies as trade secret.

**Comment No. 3:** BACT for Electric Arc Furnaces

CO Factor. CMC does not demonstrate that a 4.0 lb/ton CO BACT limit is appropriate for the facility. Data available for other facilities does not support the CMC presentation that the scrap preheating / continuous feed conveyor system support increased CO emissions above accepted BACT. The CO emissions numbers, compared with other similar steel mills that utilize a preheating / continuous feed system indicate a much lower BACT value of below 3.0 lb/ton.

$SO_2$ Factor. CMC does not demonstrate that a 0.6 lb/ton of $SO_2$ BACT limit is appropriate for the facility. CMC does not appear to provide justification for the much higher $SO_2$ limits in the information available for review. Based on industry performance a $SO_2$ BACT limit of 0.4 lb/ton seems more appropriate.

**AQD Response**

There are two issues here: CO and $SO_2$.

For CO, the commenter indicates available data for other facilities does not support the proposed BACT level of 4.0 lb/ton CO BACT. The AQD review relied specifically on the EPA's RBLC web site data as no other recent BACT determination was available. Of the listed determinations the EAF at the Gerdau Ameristeel facility located in Mecklenburg County, NC was the only unit listed in the RBLC that utilizes a scrap preheating process with a DEC system. Accordingly, the BACT limit of 4.4 lb/ton of steel for CO emissions for the Gerdau Ameristeel unit was compared to CMC's proposed CO emission limit. Because CMC's proposed emission limit of 4.0 lb/ton is more stringent than the Gerdau Ameristeel unit, we concluded that CMC's proposed emission limit constitutes BACT.

For $SO_2$, CMC proposes to use petroleum coke alone or in combination with other carbon sources such as coal products like anthracite. As indicated in the BACT review, the proposed limit of 0.6 lb/ton is higher than the lowest determinations on the EPA's RBLC. However, the RBLC BACT determinations did not include any EAF operations that use petroleum coke. Two PSD BACT reviews for EAF's that use petroleum coke were identified. These were for sites in Region 6 and contained limits of 0.6 lb/ton and 0.66 lb/ton. Based on these BACT levels and the cost analysis, 0.6 lb/ton constitutes BACT.

**Comment No. 4:** Modeling Data vs. Actual Data

Modeling numbers reflect the input of information and data provided by CMC. If modeling data input is inaccurate then it is difficult to determine the impact, if any, on fence line concentrations of pollutants. Some of the numbers represented by CMC do not appear to be consistent with industry standards and raise concern over future emission levels and impact on the community and operations of the proposed mill. It appears that CMC has not included all off site sources in the modeling data. It is important for the protection of public health to include these sources in calculations. An aerial map of the Durant area clearly shows other sources that have the potential to emit and should be included in the modeling data for the proposed CMC mill.

Fugitive emissions do not appear to be included in the modeling. Why was no off-site fugitive/area sources included? What is the Oklahoma DEQ plan and path forward in the event that actual emissions data is no consistent with the draft permit? How does Oklahoma intend to deal with inaccuracies and how will the proposed mill operations be impacted by the Oklahoma DEQ? How will Oklahoma ensure that no adverse health impacts will result from modeling errors?

**AQD Response**

Source data in the modeling submittal is compared to the emission data proposed in the permit application. The modeling is not accepted if the emissions proposed in the permit application are not less than or equal to the emissions in the modeling submittal. The proposed emission data from the application is reviewed and established as permit limits within the permit along with requirements to demonstrate compliance with the proposed emission limits.

Not all off site sources are required to be included in the modeling. Only those sources which have a "significant concentration gradient" within the modeling domain and which are not considered to be represented within the background impacts were used to demonstrate compliance with the NAAQS.

The background impacts which are representative of regional impacts and which were used in the modeling submittal were approved by the AQD prior to submittal of the modeling analysis and are summarized below. Those concentrations are shown on Page 85 of the evaluation memo.

These regional impacts of the representative background concentrations are added to the modeled impacts and are representative of impacts from small area sources and impacts from large sources located within the region. Use of background concentrations within a NAAQS analysis includes some conservativeness (double counting of source impacts) since some of the sources which are represented by the background concentrations are actually included within the modeling analysis.

Sources that are included in the modeling analysis are drawn from the AQD emission inventory data. If a source is not included within the emission inventory dataset, it is considered an area source and represented by the background concentration which is included in the NAAQS review. The AQD conducted a review of all sources within 60 km of the proposed facility. During this review, certain sources were excluded from the requirement to be included within the modeling analysis. Fugitive sources located greater than 10 km from the facility were specifically excluded from the modeling analysis since they do not have a significant concentration gradient within the modeling domain. The emission inventory dataset did not include any fugitive emission source within 10 km of the proposed facility. Any fugitive source which is not in the emission inventory dataset is considered an area source and represented by the background concentration. The modeling analysis did include fugitive sources from the CMC facility.

Any potential facility changes or future operations which are not representative of the proposed facility or operations shall be considered and reviewed in accordance with PSD guidance. Additionally, the permit contains emissions testing and monitoring to assure the proposed facility emissions were accurately represented. The facility is subject to enforcement procedures in the event of non-compliance with permit limits/requirements.

**Comment No. 5:** Fence Line Interpretation

The models utilize "fence line" as the appropriate boundary (since the fence line is restrictive of offsite personnel entry). The current draft utilized "property line" as the boundary for the models. How does CMC intend to justify this decision and is CMC planning on fencing the property line to be consistent with other permitted facilities?

Additionally, a public highway appears to transect the property? How will this road be impacted? How will public access be controlled? What is the impact of this road on emergency response and local citizen needs?

**AQD Response**

The current modeling submittal utilizes a boundary to define the modeling domain beyond which CMC has determined the modeling impacts. CMC has implied by using this boundary that in the future public access to the area inside the boundary will be limited to facility personnel. CMC has also indicated that the boundary used in the modeling will contain a fence.

The county road (Buckeye Road) that LEAN references does not quite transect the property. This road actually dead ends with the boundary established within the modeling. Also, the proposed buildings, indicated in the modeling, to be located on the CMC property cross the road at several locations. Based on the available information, in the future, this road will only be used to access the CMC facility and will be closed to the public.

Since the modeling indicates that CMC will own and control all of the land encompassed by the modeling boundary, there should be no impacts on "emergency response or local citizen needs."

**Comment No. 6:** PM Condensable

The values represented by CMC do not appear to be demonstrable. The representation of a total PM limit of 0.0024 gr/dscf is not achievable in practice. The only way for the Oklahoma DEQ to demonstrate this value is to require extensive baghouse testing requirements in the permit to ensure that the permitted PM emission limits are being met.

**AQD Response**

Stack testing for PM, and other PSD pollutants, is required in Specific Condition No. 9 of the draft permit. Testing of both filterable and condensable PM is required. These tests will adequately demonstrate compliance with applicable emissions limits for the main furnace.

The "proposed" permit was submitted to EPA for a 45-day review period. Region VI submitted the following comments:

**EPA COMMENT NO. 1:** The BACT analysis in the Permit Memorandum (Preliminary Determination Summary) should contain a detailed administrative record documenting appropriate BACT determinations for the emissions of sulfur dioxide ($SO_2$) and volatile organic compounds (VOC). In particular, there is no comparison of the proposed control units with other types of control technology for electric arc furnace (EAFs) in recent PSD permits issued nationwide. The BACT evaluation process involves reviewing not only the EPA's BACT/LAER Clearinghouse, but also Federal/State/Local NSR permits across the country. Please provide the State's rationale for the BACT determinations, including an analysis of the technical and economic feasibility of available control technologies. As an example, the Arkansas Department of Environmental Quality (ADEQ) issued a permitted BACT limit for VOC of 0.088 lb/ton of steel produced utilizing Scrap Management Plan, for the Big River Steel LLC (ADEQ Permit No. 2305-AOP-R0)1.(1 See Big river Steel permit at:

https://www.adeq.state.ar.us/home/pdssql/p_facil_info.aspx?AFINDash=47-00991&AFIN=4700991

Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 0.088 lb/ton of steel produced VOC limit cannot be achieved by this facility.

**AQD Response:**

The review of BACT utilized significant available resources, primarily EPA's RBLC web page. Technology does improve with time, but there is always a time lag between making BACT determinations and posting them where they are available to the public for inclusion in permit applications. As requested, ODEQ reviewed the Arkansas permit to assure the proposed BACT determinations continue to be acceptable.

It should also be noted that sometimes technology does not perform as hoped, making its inclusion with "available" technologies questionable.

A complete technical and economic review was conducted on pages 16-38 of the evaluation memo. VOC emissions were discussed beginning on Page 32 of permit memorandum and $SO_2$ was discussed beginning on Page 28.

As indicated in the proposed permit, even "clean" scrap contains finite amounts of organic materials. The proposed CMC facility includes a heat recovery scrap preheating operation which is not shown to be present in the Arkansas permit that EPA has stated to be exemplary. As the residual organic materials on scrap reach 750$^{o}$F, the organics begin "cracking" to smaller, lighter hydrocarbons which become VOC emissions. These VOCs will begin reacting with oxygen, forming CO. As long as the waste heat recovery / scrap preheating process is used, this facility will have higher CO emissions than facilities without such waste heat recovery and scrap preheating.

Review of the Arkansas permit did not indicate that a similar pre-heating process was included. Since this process is the basis for difference, ODEQ believes the current BACT proposals are acceptable.

**EPA COMMENT NO. 2:** The determination of BACT for sulfur dioxide ($SO_2$) for the proposed EAF is less stringent than the 0.18 lb/ton of steel produced emission rate contained in the Big River Steel LLC permit, cited above. Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a 0.18 lb/ton of steel produced emission $SO_2$ limit cannot be achieved by this facility.

**AQD Response:** $SO_2$ was discussed beginning on Page 28 of the permit memorandum. Sulfur enters the process as impurities on scrap, in coke used to carburize steel, and to a lesser extent, in the graphite electrodes. Low-sulfur raw materials are becoming scarcer and are ceasing to be "available." As detailed in the review, other determinations are equal or less than the Arkansas facility, therefore, the inclusion of this one determination does not alter the outcome.

**EPA COMMENT NO. 3:** The determination of BACT for carbon monoxide (CO) for the proposed EAF is less stringent than the 2.0 lb/ton of steel produces emission rate contained in the Big River Steel LLC permit, cited above and 1.3273 lb/ton of steel produced contained in the Structural Metals Inc. (which is subsidiary of CMC) permit No. PSD-TX-708M6 (RBLC ID: TX-0705) issued by TCEQ. Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a lower lb/ton of steel produced emission CO limit cannot be achieved by this facility.

**AQD Response:** As previously discussed, CO emissions are created by the pre-heating process to be installed at the Durant facility but which are not shown in the permit for the Osceola, Arkansas facility nor the Seguin, Texas, facility. No direct comparison of emissions between the two types of operations is practical.

**EPA COMMENT NO. 4:** . The determination of BACT for nitrogen oxides (NOx) for the proposed EAF is less stringent than the 0.2159 lb/ton of steel produced contained in the Structural Metals Inc. permit (No. PSD-TX-708M6) issued by Texas Commission on Environmental Quality (TCEQ). Please provide the State's rationale for why, after analyzing the technical and economic feasibility of available control technologies, a lower 0.2159 lb/ton of steel produced NOx emission limit cannot be achieved by this facility.

**AQD Response:**

The NOx BACT review conducted by AQD accounted for the design of the electric arc furnace as compared to other permitted electric arc furnaces. The furnace mentioned by EPA in the Texas PSDTX708M6 permit was not the same design as the proposed furnace in this permit; the proposed furnace for Oklahoma has oxy-firing, while the Texas furnace did not. Only one other pre-heat furnace with oxyfiring was found, the CMC mill in Arizona. The BACT level of 0.3 lb NOx/ton of steel that was issued in the CMC Arizona permit has been demonstrated in practice to be a tight, but achievable, limit for this technology furnace. The average NOx emissions from initial performance testing for the Arizona facility was 0.25 lb/ton. With a standard deviation of 0.02 and a t-value of 2.28, the 95% confidence upper-bound is 0.29, or in round numbers, 0.3 lb/ton. The NOx limit of 0.3 lb/ton of steel in the draft permit is therefore BACT for the proposed furnace technology.

**EPA COMMENT NO. 5:**. The permit and the permit memorandum do not appear to address start-up, shutdown, and maintenance/malfunction (SSM) activities. All SSM activities associated with this facility must be authorized by this permit. SSM emissions must be subject to both the short-term and annual permitted emission limits and supported by adequate monitoring and recordkeeping provisions. Best Available Control Technology (BACT) limits may not be waived during periods of startup, shutdown and maintenance. However, the ODEQ can make an on-the-record determination that compliance with BACT emission limitations is infeasible during SSM activities and therefore establish secondary BACT limits or work practices for those periods. Such secondary limits or work practices must be justified as BACT and the permitting authority must ensure that all PSD requirements are met, including compliance with NAAQS and PSD increment provisions. (2 See In re Prairie State Generating Co., PSD Appeal No. 05-05, at 113-118 (EAB, August 24, 2006), 13 E.A.D.; In re Tallmadge Generating Station, PSD Appeal No. 02-12, at 28 (EAB, May 21, 2003); In re Indeck-Niles Energy Center., PSD Appeal No. 04-01, at 15-18 (EAB, Sept. 30, 2004); In re Rockgen Energy Center, 8 E.A.D. 536, 554 (EAB 1999)

**AQD Response:** The nature of the operation is that SSM emissions will be lower than maximum normal operations, therefore, SSM need not be addressed separately. SSM are included as part of the proposed limits. These limits comply with all NAAQS and increments.

**EPA COMMENT NO. 6:** The permit should contain a condition to make the use of control equipment federally enforceable at all times. If the control equipment is not in operation it should be considered a deviation from compliance with respect to operation and maintenance "in a manner consistent with good air pollution control practice" as specified in 40 CFR 60.11(d). Should this control not be available during SSM, the ODEQ should specify in the permit an appropriate design, control, methodology, work practice (such as a limitation on total startup and shutdown event time), or other change to minimize excess emissions during these periods.

**AQD Response:**
The Specific Conditions of the draft permit require use of control equipment and the Standard Conditions contain federally enforceable "Duty to Comply" conditions that require the permit holder to comply with all conditions of the permit. The applicant did not indicate any operational scenario where the control equipment would not be available so no additional scenario is needed.

**EPA COMMENT NO. 7:** . Through the permit, BACT limits for sulfur dioxide and nitrogen oxides are on a lb/ton of steel melted. Please clarify what is the time averaging period. Due to 1 hour NAAQS standard for sulfur dioxide and for nitrogen oxides, limits for these pollutants should be on a similar short term basis, (i.e. on a 1 hour basis). If the time average period is longer than one hour, please make appropriate revision of the time averaging period.

**AQD Response:**

Since the facility will not be utilizing CEMS, the compliance determination method is EPA reference method stack testing, which is by its nature, a three-hour average. ODEQ believes that, while it is true that $SO_2$ and NOx have 1-hour averaging times specified with their NAAQS standards, violations are actually based on a three year average of the $98^{th}$ percentile of the daily maximum 1-hour impacts so a 3 hour average limit is sufficient to protect the NAAQS.

**EPA COMMENT NO. 8:** . The draft/proposed PSD permit includes many non-point sources, which are sources that are not vented through a stack but rather are emitted from area or volume sources and contains no testing or recordkeeping requirements. These sources include material handling and storage piles, haul roads, torch cutting of scrap, casting operations, and unenclosed drop and loading points, which commonly are controlled by wet suppression using water sprays. We recommend that the CMC shall implement a fugitive emission dust control plan to control dust emissions from the sources specified in the permit and submit for Department approval. It is important that facilities design realistic dust control programs incorporating both methods and work practices that are feasible for their worksite activities.

**AQD Response:** The units in question are EUG-07 (Outdoor Material Handling) and EUG-12 (Roads). CMC submitted fugitive control options with the application, these were found to be acceptable for Oklahoma. Page 73 of the memo has been updated to include the approved controls as identified in the permit on page 4.

**EPA COMMENT NO. 9:**. Specific Condition 5 on page 2 of the Draft/Proposed permit states that Compliance with the hourly and BACT limits shall be demonstrated by stack testing as described in Specific Condition No. 9. Compliance with the annual emission limits shall be demonstrated by records of annual steel casting below the limit in Specific Condition No. 2. Given the fact that the emission limits represent BACT, ODEQ should give strong consideration to requiring Continuous Emission Monitoring System (CEMS) for these pollutants for an extended period of time in order to demonstrate compliance, and at a minimum for NOx. Both NOx and $SO_2$ have 1-hour ambient air quality standards and a once per year stack test is not adequate to ensure that short-term emissions of these pollutants (and therefore short-term ambient impacts) are below permit levels on a continual basis.

**AQD Response:** While it is true that CEMS give the most reliable measurement of emissions, such a requirement seems excessive compared to what is being required for similar facilities. This includes permits for the Osceola, Arkansas, and the Seguin, Texas facilities.

**EPA COMMENT NO. 10:** . The Draft Permit established GHG BACT limits of $CO_2e$ for those source groups; but no applicable compliance requirements in the Draft Permit which leads to verification of GHG BACT limits on those sources. ODEQ should establish appropriate monitoring and reporting requirements according to 40 CFR Part 98, Subpart Q, Iron and Steel Production.

**AQD Response:**. The permit requires the facility to demonstrate compliance with the GHG BACT through direct stack testing as contained in Specific Condition #9. Additionally, Specific Condition #6 requires the facility to utilize Part 98 to quantify GHG emissions. While ODEQ believed the reference to Part 98 required the facility to follow the monitoring thereunder, the citation has been added to the permit.

Information on all permit actions is available for review by the public in the Air Quality section of the DEQ Web page:*http://www.deq.state.ok.us.*

The applicant has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the real property.

## SECTION XI. FEES PAID

Part 70 construction permit fee of $7,500.

## SECTION XII. SUMMARY

The facility has demonstrated the ability to comply with the requirements of applicable air pollution control requirements. Ambient air quality standards are not threatened at this site. There are no active Air Quality compliance or enforcement issues concerning this facility. Issuance of the permit is recommended.

**PERMIT TO CONSTRUCT**
**AIR POLLUTION CONTROL FACILITY**
**SPECIFIC CONDITIONS**

**Commercial Metals Company** **Permit No. 2015-0643-C (PSD)**
**Durant Steel Mill**

The permittee is authorized to construct in conformity with the specifications submitted to Air Quality on April 8, 2015. The Evaluation Memorandum, dated January 15, 2016, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. Commencing construction or continuing operations under this permit constitutes acceptance of, and consent to, the conditions contained herein:

1. Point of emissions and applicable emissions limitations. [OAC 252:100-8-6(a)(1)]

**A. EUG 01 Melt Shop and EUG 02 Ladle Metallurgy Station**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| EAF | MELTBH | Electric Arc Furnace (EAF) | 2016 |
| LMS | MELTBH | Ladle Metallurgy Station | 2016 |
| ALLOYMELT | MELTBH | Alloy Handling in the Melt Room | 2016 |
| SLAGMELT | MELTBH | Slag Handling in the Melt Room | 2016 |

| Point ID | $PM/PM_{10}/PM_{2.5}$ | | $SO_2$ | | NOx | | VOC | | CO | |
|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY |
| MELTBH | 13.37 | 58.57 | 60.00 | 195.00 | 30.00 | 97.50 | 30,00 | 97.50 | 400.00 | 1,300.0 |

| Point ID | Lead | |
|---|---|---|
| | lb/hr | TPY |
| MELTBH | 0.11 | 0.47 |

1. Discharges from these units shall be processed by a fabric filter or equivalent system which achieves 0.0024 gr/DSCF PM emissions (filterable plus condensable PM).
2. The electric arc furnace is subject to 40 CFR Part 60, Subpart AAa, and shall comply with all applicable provisions. Applicability and designation of affected facility. [40 CFR Part 60.270a]
   a. Definitions [40 CFR Part 60.271a]
   b. Standard for particulate matter [40 CFR Part 60.272a]
   c. Emissions monitoring [40 CFR Part 60.273a]
   d. Monitoring of operations [40 CFR Part 60.274a]
   e. Test methods and procedures [40 CFR Part 60.275a]
   f. Recordkeeping and reporting requirements [40 CFR Part 60.276a]

3. The following energy-efficient practices and designs shall be incorporated into the facility:
   a. Scrap preheating
   b. Use of continuous billet rolling

4. The following emissions levels shall be met by the EAF, in terms of lb/ton of steel melted.
   a. 0.3 lb/ton NOx
   b. 0.6 lb/ton $SO_2$.
   c. 0.3 lb/ton VOC.
   d. 4.0 lb/ton CO.
   e. 535 lb/ton $CO_2e$.

5. Compliance with the hourly and BACT limits shall be demonstrated by stack testing as described in Specific Condition No. 9. Compliance with the annual emission limits shall be demonstrated by records of annual steel casting below the limit in Specific Condition No. 2. [OAC 252:100-43]

**B. EUG 3 Gas-fired Heaters and Continuous Caster**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| LADLEDRYER | CASTERVENT | Ladle Dryer | 2016 |
| LADLEPHEAT | CASTERVENT | Ladle Preheaters | 2016 |
| TUNDDRYER | CASTERVENT | Tundish Dryer | 2016 |
| TUNDMANDRY | CASTERVENT | Tundish Mandril Dryer | 2016 |
| TUNDPHEAT | CASTERVENT | Tundish Preheaters | 2016 |
| CASTER | CASTERVENT | Continuous Caster | 2016 |
| CASTER | CASTSPRAY | Continuous Caster | 2016 |

| Point ID | $PM_{10}$ / $PM_{2.5}$ | | $SO_2$ | | NOx | | VOC | | CO | |
|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY |
| CASTER VENT | 2.08 | 7.93 | 0.27 | 1.10 | 3.90 | 17.04 | 1.32 | 5.38 | 5.24 | 22.22 |
| CASTER SPRAY | 0.26 | 1.06 | 0.06 | 0.25 | 0.02 | 0.07 | 0.26 | 1.05 | 0.39 | 1.59 |

1. The above heaters shall be fueled with pipeline-grade natural gas.

**E. EUG 05 Melt Shop Materials Storage**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| CARBNHNDLG | CARBHOPPER | Carbon handling/storage system | 2016 |
| CARBNHNDLG | CARBSILO1 | Carbon handling/storage system | 2016 |
| FLUXHNDLG | FLUXHOPPER | Fluxing agent handling/storage system | 2016 |
| FLUXHNDLG | FLUXSILO1 | Fluxing agent handling/storage system | 2016 |
| FLUXHNDLG | FLUXSILO2 | Fluxing agent handling/storage system | 2016 |
| REFRCCASTR | CASTERVENT | Spent refractory handling in the Caster Room | 2016 |

| EU ID# | Point ID# | EU Name/Model | $PM_{10}$ / $PM_{2.5}$ | |
|---|---|---|---|---|
| | | | lb/hr | TPY |
| CARBNHNDLG | CARBHOPPER | Carbon handling/storage system | 0.14 | 0.60 |
| CARBNHNDLG | CARBSILO1 | Carbon handling/storage system | 0.18 | 0.70 |
| FLUXHNDLG | FLUXHOPPER | Fluxing agent handling/storage system | 0.07 | 0.30 |
| FLUXHNDLG | FLUXSILO1 | Fluxing agent handling/storage system | 0.26 | 1.13 |
| FLUXHNDLG | FLUXSILO2 | Fluxing agent handling/storage system | 0.26 | 1.13 |

1. Discharges from these units shall be processed by a fabric filter or equivalent system which achieves 0.01 gr/DSCF PM emissions.
2. At least once in any calendar quarter in which material is loaded into a silo, the permittee shall conduct Method 22 testing of visible emissions from that silo during filling. The duration of the test shall be at least 15 minutes.

**F. EUG 06 Scrap Cutting**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| SCRAPCUT | SCRAPCUT | Torch cutting of Scrap | 2016 |

| Point ID | PM /$PM_{10}$/ $PM_{2.5}$ | | $SO_2$ | | NOx | | VOC | | CO | |
|---|---|---|---|---|---|---|---|---|---|---|
| | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY | lb/hr | TPY |
| SCRAPCUT | 0.02 | 0.02 | 0.01 | 0.01 | 0.06 | 0.12 | 0.01 | 0.01 | 0.03 | 0.06 |

1. Scrap cutting shall be conducted using natural gas or LPG fuel and oxy-fired torches.

[OAC 252:100-8-5]

## G. EUG 07 Outdoor Material Handling

| EU ID# | Point ID# | EU Name/Model | Construction Date | BACT |
|---|---|---|---|---|
| ALLOYHNDLG | ALLOYPILES | Outdoor alloy handling/storage | 2016 | Minimize Drop Height |
| SLAGCOOLING | SLAGYARD | Slag cooling station / surge pile | 2016 | Minimize Drop Height |
| REFRCHNDLG | SLAGYARD | Outdoor spent refractory handling/storage | 2016 | Minimize Drop Height & Wetting Material |
| SCALENHDLG | SCALEPILES | Outdoor mill scale handling/storage | 2016 | Minimize Drop Height & Wetting Material |
| SWEEPHNDLG | SCRAPYARD | Outdoor residual scrap/sweepings handling | 2016 | Minimize Drop Height |
| SCRAPBLDG | SCRAPBLDG | Scrap handling at Scrap Storage Building | 2016 | Partial Enclosure |
| SCRAPHNDLG | SCRAPYARD | Outdoor scrap handling in yard | 2016 | Minimize Drop Height |
| SLAGPROCSS | SLAGYARD | Outdoor slag handling/storage/processing | 2016 | Minimize Drop Height & Wetting Material |
| DUSTHNDLG | DUSTBLDG | EAF baghouse dust handling/storage system | 2016 | Partial Enclosure & Bag House |

1. Reasonable precautions shall be taken to minimize fugitive dust emissions. These precautions shall include those listed in the BACT Column of Table G.

[OAC 252:100-29]

## H. EUG 08 Baghouse Dust Handling

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| DUSTHNDLG | DUSTSILO1 | EAF baghouse dust handling/storage system | 2016 |

| EU ID# | Point ID# | EU Name/Model | $PM_{10}$ / $PM_{2.5}$ | |
|---|---|---|---|---|
| | | | lb/hr | TPY |
| DUSTHNDLG | DUSTSILO1 | EAF baghouse dust handling/storage system | 0.11 | 0.49 |

1. Discharges from these units shall be processed by a fabric filter or equivalent system which achieves 0.01 gr/DSCF PM emissions.
2. At least once in any calendar quarter in which material is loaded into a silo, the permittee shall conduct Method 22 testing of visible emissions from that silo during filling. The duration of the test shall be at least 15 minutes.

## I. EUG 09 Emergency Generator, EUG 10 Emergency Generator, and EUG 11 Firewater Pump Engine

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ENG-GEN1 | ENG-GEN1 | Emergency Generator | 2016 |

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ENG-GEN2 | ENG-GEN2 | Emergency Generator | 2016 |

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ENG-FWP1 | ENG-FWP1 | Fire Pump | 2016 |

1. The above engines are subject to 40 CFR Part 60, Subpart IIII, and shall comply with all applicable requirements: [40 CFR 60.4200 – 4219]

   a. 60.4200: Am I subject to this subpart?
   b. 60.4201: What emissions standards must I meet for non-emergency engines if I am a stationary CI engine manufacturer?
   c. 60.4202: What emissions standards must I meet for emergency engines if I am a stationary CI internal combustion engine manufacture?
   d. 60.4203: How long must my engines meet the emissions standards if I am a stationary CI internal combustion engine manufacturer?
   e. 60.4204: What emissions standards must I meet for non-emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
   f. 60.4205: What emissions standards must I meet for emergency engines if I am an owner or operator of a stationary CI internal combustion engine?
   g. 60.4206: How long must my engines meet the emissions standards if I am a owner or operator of a stationary CI internal combustion engine?
   h. 60.4207: What fuel requirements must I meet if I am an owner or operator of a stationary CI internal combustion engine subject to this subpart?
   i. 60.4208: What is the deadline for importing or installing stationary CI ICE produced in the previous model year?
   j. 60.4209: What are the monitoring requirements if I am an owner or operator of a stationary CI internal combustion engine?
   k. 60.4210: What are my compliance requirements if I am a stationary CI internal combustion engine manufacturer?
   l. 60.4211: What are my compliance requirements if I am an owner or operator of a stationary CI internal combustion engine?
   m. 60.4212: What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of less than 30 liters per cylinder?
   n. 60.4213: What test methods and other procedures must I use if I am an owner or operator of a stationary CI internal combustion engine with a displacement of greater than or equal to 30 liters per cylinder?

o. 60.4214: What are my notification, reporting, and recordkeeping requirements if I am an owner or operator of a stationary CI internal combustion engine?
p. 60.4215: What requirements must I meet for engines used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands?
q. 60.4216: What requirements must I meet for engines used in Alaska?
r. 60.4217: What emission standards must I meet if I am an owner or operator of a stationary internal combustion engine using special fuels?
s. 60.4218: What parts of the General Provisions apply to me?
t. 60.4219: What definitions apply to this subpart?

2. The owner/operator shall comply with all applicable requirements of the NESHAP Reciprocating Internal Combustion Engines, Subpart ZZZZ, for each affected facility including but not limited to: [40 CFR 63.6580 through 63.6675]

What This Subpart Covers
a. § 63.6580 What is the purpose of subpart ZZZZ?
b. § 63.6585 Am I subject to this subpart?
c. § 63.6590 What parts of my plant does this subpart cover?
d. § 63.6595 When do I have to comply with this subpart?
Emission and Operating Limitations
e. § 63.6603 What emission limitations and operating limitations must I meet if I own or operate an existing stationary RICE located at an area source of HAP emissions?
General Compliance Requirements
f. § 63.6605 What are my general requirements for complying with this subpart?
Testing and Initial Compliance Requirements
g. § 63.6625 What are my monitoring, installation, operation, and maintenance requirements?
h. § 63.6630 How do I demonstrate initial compliance with the emission limitations and operating limitations?
Continuous Compliance Requirements
i. § 63.6640 How do I demonstrate continuous compliance with the emission limitations and operating limitations?
Notifications, Reports, and Records
j. § 63.6650 What reports must I submit and when?
k. § 63.6655 What records must I keep?
l. § 63.6660 In what form and how long must I keep my records?
Other Requirements and Information
m. § 63.6665 What parts of the General Provisions apply to me?
n. § 63.6670 Who implements and enforces this subpart?
o. § 63.6675 What definitions apply to this subpart?

3. The engines shall be operated a maximum of 100 hours per calendar year for maintenance and reliability checks, and other non-emergency operations. Records of hours of operation shall be kept for each engine. [OAC 252:100-43]

**J. EUG 12 Roads**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| ROADS | ROADS | Plant Roads | 2016 |

1. The following measures shall be implemented to minimize fugitive dust emissions from plant roads: [OAC 252:100-29]
   a. Paved haul roads shall be cleaned as necessary.
   b. Speed limits shall be set and enforced on plant roads.

**K. EUG 13 Cooling Towers**

| EU ID# | Point ID# | EU Name/Model | Construction Date |
|---|---|---|---|
| COOLTOWER1 | COOLTOWER1 | Cooling Tower 1 | 2016 |
| COOLTOWER2 | COOLTOWER2 | Cooling Tower 2 | 2016 |
| COOLTOWER3 | COOLTOWER3 | Cooling Tower 2 | 2016 |

| EU ID# | Point ID# | EU Name/Model | $PM_{10}$ / $PM_{2.5}$ | |
|---|---|---|---|---|
| | | | lb/hr | TPY |
| COOLTOWER1 | COOLTOWER1 | Cooling Tower 1 | 0.08 | 0.36 |
| COOLTOWER2 | COOLTOWER2 | Cooling Tower 2 | 0.11 | 0.48 |
| COOLTOWER3 | COOLTOWER3 | Cooling Tower 2 | 0.11 | 0.48 |

1. The above units shall be constructed with drift eliminators designed to achieve 0.001% or better.
2. At least once per calendar quarter during the first two years of operation, the total dissolved solids (TDS) content of the cooling water shall be monitored and recorded.
3. If all TDS content measurements in the first two years are less than 1,500 ppm, TDS testing may be reduced to annual. If TDS is above 1,500 ppm during the first two years, testing shall be continued. [OAC 252:100-43]

2. The permittee shall be authorized to operate the electric arc furnaces continuously (24 hours per day, every day of the year) up to a production rate of 650,000 tons/yr of cast steel produced, 12-month rolling total. [OAC 252:100-8-6(a)]

3. Except for units subject to opacity limitations of 40 CFR Part 60, Subpart AAa or 40 CFR Part 63, Subpart YYYYY, the opacity of any emission to the atmosphere shall not exceed 20% except for short-term occurrences not to exceed six minutes in any hour or three six-minute periods in any 24-hour period; in no case shall a six-minute opacity exceed 60%. [OAC 252:100-25]

4. Except for the emergency engines, the fuel-burning equipment shall be fired with pipeline grade natural gas or other gaseous fuel with a sulfur content less than 4 ppmv. Compliance can be shown by the following methods: for pipeline grade natural gas, a current gas company bill; for other gaseous fuel, a current lab analysis, stain-tube analysis, gas contract, tariff sheet, or other approved methods. Compliance shall be demonstrated at least once every calendar year. [OAC 252:100-31]

5. Pursuant to OAC 252:100-29, the permittee shall not cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards.
[OAC 252:100-29]

6. Total facility greenhouse gas ($CO_2e$) shall not exceed 194,006 TPY, 12-month rolling total. Compliance with this limit shall be demonstrated using the methods of 40 CFR Part 98:
[40 CFR Part 98.1 to 98.478]

   a. Subpart Q shall be used for calculating EAF greenhouse gas emissions.
      i. 98.170: Definition of the source category
      ii. 98.173: Calculating GHG emissions.
      iii. 98.174: Monitoring and QA/QC requirements
      iv. 98.175: Procedures for estimating missing data
      v. 98.177: Records that must be retained
      vi. 98.178: Definitions

   b. Subpart C shall be used for calculating fuel combustion greenhouse gas emissions.
      i. 98.30: Definition of the source category
      ii. 98.33: Calculating GHG emissions.
      iii. 98.34: Monitoring and QA/QC requirements
      iv. 98.35: Procedures for estimating missing data
      v. 98.37: Records that must be retained
      vi. 98.38: Definitions
      vii. Appendix: Table C-1 to Subpart C of Part 98: Default $CO_2$ Emissions Factors and High Heat Values for Various Types of Fuel
      viii. Appendix: Table C-1 to Subpart C of Part 98: Default $CH_4$ and $N_2O$ Emissions Factors and High Heat Values for Various Types of Fuel

7. Binder usage shall not exceed 12.03 TPY, 12-month rolling total. Casting lube oil usage shall not exceed 52.66 TPY, 12-month rolling total.

8. The following records of operations shall be maintained on site. All such records shall be made available to regulatory personnel upon request. These records shall be maintained for a period of at least five years after the time they are made.
   a. Amount of cast steel produced (monthly and 12-month rolling totals).
   b. For the fuel(s) burned, the appropriate document(s) as described in Specific Condition No. 4.
   d. Records as required by 40 CFR Part 63, Subpart YYYYY.
   e. Records as required by 40 CFR Part 60, Subpart AAa.
   f. Records as required by 40 CFR Part 63, Subpart ZZZZ.
   g. Records as required by 40 CFR Part 60, Subpart IIII.
   h. Binder usage (monthly and 12-month rolling totals).

i. GHG emissions (monthly and 12-month rolling totals)
j. Caster lube oil usage (monthly and 12-month rolling totals).
k. TDS test results of cooling tower water (quarterly during the first two years of operation).
l. Visible emissions testing of raw materials and baghouse dust silos (quarterly when operated).
m. Records of fire pump and emergency generator hours of operation (monthly and 12-month rolling totals).

9. Within 180 days of start-up of normal operations of the EAF (not including initial equipment shakedown operation as part of normal construction testing), the permittee shall conduct performance testing of NOx, CO, VOC, PM, $SO_2$, and GHG emissions as follows and furnish a written report to Air Quality. Results of testing shall be expressed in the same terms as BACT specifications in Specific Condition No. 1. Testing shall be conducted while the EAF is being operated at least 90% of permitted hourly capacity. A sampling protocol and notification of testing date(s) shall be submitted at least 30 days in advance of commencement of testing. The following USEPA methods shall be used for testing of emissions, unless otherwise approved by Air Quality: [OAC 252:100-43]

| | |
|---|---|
| Method 1: | Sample and Velocity Traverses for Stationary Sources. |
| Method 2: | Determination of Stack Gas Velocity and Volumetric Flow Rate. |
| Method 3: | Gas Analysis for Carbon Dioxide, Excess Air, and Dry Molecular Weight. |
| Method 4: | Moisture in Stack Gases. |
| Method 5: | PM Emissions from Stationary Sources |
| Method 202: | Condensable Particulate Matter |
| Method 6 or 6C: | Sulfur Dioxide Emissions from Stationary Sources |
| Method 7E: | NOx Emissions from Stationary Sources |
| Method 10: | CO Emissions from Stationary Sources |
| Method 25A: | Non-Methane Organic Emissions from Stationary Sources |

10. The facility is subject to 40 CFR Part 63, Subpart YYYYY, and shall comply with all requirements specified in the final standard. [40 CFR Part 63, Subpart YYYYY]

11. No later than 180 days of start of normal operation of the steel furnace (not including initial equipment shakedown operation as part of construction testing), the permittee shall apply for a Title V operating permit and request that the specific conditions of this construction permit be incorporated into the Title V permit. [OAC 252:100-8-6]

# PERMIT

**AIR QUALITY DIVISION**
**STATE OF OKLAHOMA**
**DEPARTMENT OF ENVIRONMENTAL QUALITY**
**707 NORTH ROBINSON, SUITE 4100**
**P.O. BOX 1677**
**OKLAHOMA CITY, OKLAHOMA 73101-1677**

## Permit No. 2015-0643-C (PSD)

**Commercial Metals Company,**

**having complied with the requirements of the law, is hereby granted permission to construct a greenfield steel mill at the intersection of Old US-70 and McLean Road, Sec. 34 – 6S – 9E, Durant, Bryan County, subject to standard conditions dated July 21, 2009, and specific conditions, both attached.**

**In the absence of commencement of construction, this permit shall expire 18 months from the issuance date, except as authorized under Section VIII of the Standard Conditions.**

**Division Director, Air Quality Division** **Date**

Commercial Metals Company
Attn: Mr. Randall Walker
1 Steel Mill Drive
Seguin, TX 78155

Re: Permit Application No. 2015-0643-C (PSD)
Greenfield Steel Mill (FAC ID 14935)
Durant, Bryan County, Oklahoma

Dear Mr. Walker:

Enclosed is the permit authorizing construction of the referenced facility. Please note that this permit is issued subject to standard and specific conditions, which are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Also note that you are required to annually submit an emissions inventory for this facility. An emissions inventory must be completed on approved AQD forms and submitted (hardcopy or electronically) by April 1st of every year. Any questions concerning the form or submittal process should be referred to the Emissions Inventory Staff at 405-702-4100.

Thank you for your cooperation in this matter. If we may be of further service, please contact our office at (405)702-4100.

Sincerely,

Phillip Fielder, P.E.
AIR QUALITY DIVISION
Enclosure

**MAJOR SOURCE AIR QUALITY PERMIT**
**STANDARD CONDITIONS**
**(July 21, 2009)**

## SECTION I. DUTY TO COMPLY

A. This is a permit to operate / construct this specific facility in accordance with the federal Clean Air Act (42 U.S.C. 7401, et al.) and under the authority of the Oklahoma Clean Air Act and the rules promulgated there under. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

B. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ). The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

C. The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Oklahoma Clean Air Act and shall be grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. All terms and conditions are enforceable by the DEQ, by the Environmental Protection Agency (EPA), and by citizens under section 304 of the Federal Clean Air Act (excluding state-only requirements). This permit is valid for operations only at the specific location listed.
[40 C.F.R. §70.6(b), OAC 252:100-8-1.3 and OAC 252:100-8-6(a)(7)(A) and (b)(1)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [OAC 252:100-8-6(a)(7)(B)]

## SECTION II. REPORTING OF DEVIATIONS FROM PERMIT TERMS

A. Any exceedance resulting from an emergency and/or posing an imminent and substantial danger to public health, safety, or the environment shall be reported in accordance with Section XIV (Emergencies). [OAC 252:100-8-6(a)(3)(C)(iii)(I) & (II)]

B. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements.
[OAC 252:100-8-6(a)(3)(C)(iv)]

C. Every written report submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

## SECTION III. MONITORING, TESTING, RECORDKEEPING & REPORTING

A. The permittee shall keep records as specified in this permit. These records, including monitoring data and necessary support information, shall be retained on-site or at a nearby field office for a period of at least five years from the date of the monitoring sample, measurement, report, or application, and shall be made available for inspection by regulatory personnel upon request. Support information includes all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Where appropriate, the permit may specify that records may be maintained in computerized form.

[OAC 252:100-8-6 (a)(3)(B)(ii), OAC 252:100-8-6(c)(1), and OAC 252:100-8-6(c)(2)(B)]

B. Records of required monitoring shall include:

(1) the date, place and time of sampling or measurement;
(2) the date or dates analyses were performed;
(3) the company or entity which performed the analyses;
(4) the analytical techniques or methods used;
(5) the results of such analyses; and
(6) the operating conditions existing at the time of sampling or measurement.

[OAC 252:100-8-6(a)(3)(B)(i)]

C. No later than 30 days after each six (6) month period, after the date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to AQD a report of the results of any required monitoring. All instances of deviations from permit requirements since the previous report shall be clearly identified in the report. Submission of these periodic reports will satisfy any reporting requirement of Paragraph E below that is duplicative of the periodic reports, if so noted on the submitted report. [OAC 252:100-8-6(a)(3)(C)(i) and (ii)]

D. If any testing shows emissions in excess of limitations specified in this permit, the owner or operator shall comply with the provisions of Section II (Reporting Of Deviations From Permit Terms) of these standard conditions. [OAC 252:100-8-6(a)(3)(C)(iii)]

E. In addition to any monitoring, recordkeeping or reporting requirement specified in this permit, monitoring and reporting may be required under the provisions of OAC 252:100-43, Testing, Monitoring, and Recordkeeping, or as required by any provision of the Federal Clean Air Act or Oklahoma Clean Air Act. [OAC 252:100-43]

F. Any Annual Certification of Compliance, Semi Annual Monitoring and Deviation Report, Excess Emission Report, and Annual Emission Inventory submitted in accordance with this permit shall be certified by a responsible official. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

[OAC 252:100-8-5(f), OAC 252:100-8-6(a)(3)(C)(iv), OAC 252:100-8-6(c)(1), OAC 252:100-9-7(e), and OAC 252:100-5-2.1(f)]

G. Any owner or operator subject to the provisions of New Source Performance Standards ("NSPS") under 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants ("NESHAPs") under 40 CFR Parts 61 and 63 shall maintain a file of all measurements and other information required by the applicable general provisions and subpart(s). These records shall be maintained in a permanent file suitable for inspection, shall be retained for a period of at least five years as required by Paragraph A of this Section, and shall include records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility, any malfunction of the air pollution control equipment; and any periods during which a continuous monitoring system or monitoring device is inoperative.

[40 C.F.R. §§60.7 and 63.10, 40 CFR Parts 61, Subpart A, and OAC 252:100, Appendix Q]

H. The permittee of a facility that is operating subject to a schedule of compliance shall submit to the DEQ a progress report at least semi-annually. The progress reports shall contain dates for achieving the activities, milestones or compliance required in the schedule of compliance and the dates when such activities, milestones or compliance was achieved. The progress reports shall also contain an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [OAC 252:100-8-6(c)(4)]

I. All testing must be conducted under the direction of qualified personnel by methods approved by the Division Director. All tests shall be made and the results calculated in accordance with standard test procedures. The use of alternative test procedures must be approved by EPA. When a portable analyzer is used to measure emissions it shall be setup, calibrated, and operated in accordance with the manufacturer's instructions and in accordance with a protocol meeting the requirements of the "AQD Portable Analyzer Guidance" document or an equivalent method approved by Air Quality.

[OAC 252:100-8-6(a)(3)(A)(iv), and OAC 252:100-43]

J. The reporting of total particulate matter emissions as required in Part 7 of OAC 252:100-8 (Permits for Part 70 Sources), OAC 252:100-19 (Control of Emission of Particulate Matter), and OAC 252:100-5 (Emission Inventory), shall be conducted in accordance with applicable testing or calculation procedures, modified to include back-half condensables, for the concentration of particulate matter less than 10 microns in diameter ($PM_{10}$). NSPS may allow reporting of only particulate matter emissions caught in the filter (obtained using Reference Method 5).

K. The permittee shall submit to the AQD a copy of all reports submitted to the EPA as required by 40 C.F.R. Part 60, 61, and 63, for all equipment constructed or operated under this permit subject to such standards. [OAC 252:100-8-6(c)(1) and OAC 252:100, Appendix Q]

## SECTION IV. COMPLIANCE CERTIFICATIONS

A. No later than 30 days after each anniversary date of the issuance of the original Part 70 operating permit or alternative date as specifically identified in a subsequent Part 70 operating permit, the permittee shall submit to the AQD, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of this permit and of any other applicable requirements which have become effective since the issuance of this permit.

[OAC 252:100-8-6(c)(5)(A), and (D)]

B. The compliance certification shall describe the operating permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the methods used for determining compliance, currently and over the reporting period. The compliance certification shall also include such other facts as the permitting authority may require to determine the compliance status of the source.

[OAC 252:100-8-6(c)(5)(C)(i)-(v)]

C. The compliance certification shall contain a certification by a responsible official as to the results of the required monitoring. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." [OAC 252:100-8-5(f) and OAC 252:100-8-6(c)(1)]

D. Any facility reporting noncompliance shall submit a schedule of compliance for emissions units or stationary sources that are not in compliance with all applicable requirements. This schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the emissions unit or stationary source is in noncompliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the emissions unit or stationary source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based, except that a compliance plan shall not be required for any noncompliance condition which is corrected within 24 hours of discovery.

[OAC 252:100-8-5(e)(8)(B) and OAC 252:100-8-6(c)(3)]

## SECTION V. REQUIREMENTS THAT BECOME APPLICABLE DURING THE PERMIT TERM

The permittee shall comply with any additional requirements that become effective during the permit term and that are applicable to the facility. Compliance with all new requirements shall be certified in the next annual certification. [OAC 252:100-8-6(c)(6)]

## SECTION VI. PERMIT SHIELD

A. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC 252:100-8) shall be deemed compliance with the applicable requirements identified and included in this permit. [OAC 252:100-8-6(d)(1)]

B. Those requirements that are applicable are listed in the Standard Conditions and the Specific Conditions of this permit. Those requirements that the applicant requested be determined as not applicable are summarized in the Specific Conditions of this permit. [OAC 252:100-8-6(d)(2)]

## SECTION VII. ANNUAL EMISSIONS INVENTORY & FEE PAYMENT

The permittee shall file with the AQD an annual emission inventory and shall pay annual fees based on emissions inventories. The methods used to calculate emissions for inventory purposes shall be based on the best available information accepted by AQD.
[OAC 252:100-5-2.1, OAC 252:100-5-2.2, and OAC 252:100-8-6(a)(8)]

## SECTION VIII. TERM OF PERMIT

A. Unless specified otherwise, the term of an operating permit shall be five years from the date of issuance. [OAC 252:100-8-6(a)(2)(A)]

B. A source's right to operate shall terminate upon the expiration of its permit unless a timely and complete renewal application has been submitted at least 180 days before the date of expiration. [OAC 252:100-8-7.1(d)(1)]

C. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-8-1.4(b)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-8-1.4(a)]

D. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-8-4(b)(5)]

## SECTION IX. SEVERABILITY

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.
[OAC 252:100-8-6 (a)(6)]

## SECTION X. PROPERTY RIGHTS

A. This permit does not convey any property rights of any sort, or any exclusive privilege.
[OAC 252:100-8-6(a)(7)(D)]

B. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located and does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which the permit is issued. [OAC 252:100-8-6(c)(6)]

## SECTION XI. DUTY TO PROVIDE INFORMATION

A. The permittee shall furnish to the DEQ, upon receipt of a written request and within sixty (60) days of the request unless the DEQ specifies another time period, any information that the DEQ may request to determine whether cause exists for modifying, reopening, revoking, reissuing, terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit.
[OAC 252:100-8-6(a)(7)(E)]

B. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 27A O.S. § 2-5-105(18). Confidential information shall be clearly labeled as such and shall be separable from the main body of the document such as in an attachment.
[OAC 252:100-8-6(a)(7)(E)]

C. Notification to the AQD of the sale or transfer of ownership of this facility is required and shall be made in writing within thirty (30) days after such sale or transfer.
[Oklahoma Clean Air Act, 27A O.S. § 2-5-112(G)]

## SECTION XII. REOPENING, MODIFICATION & REVOCATION

A. The permit may be modified, revoked, reopened and reissued, or terminated for cause. Except as provided for minor permit modifications, the filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes, or anticipated noncompliance does not stay any permit condition.
[OAC 252:100-8-6(a)(7)(C) and OAC 252:100-8-7.2(b)]

B. The DEQ will reopen and revise or revoke this permit prior to the expiration date in the following circumstances: [OAC 252:100-8-7.3 and OAC 252:100-8-7.4(a)(2)]

(1) Additional requirements under the Clean Air Act become applicable to a major source category three or more years prior to the expiration date of this permit. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
(2) The DEQ or the EPA determines that this permit contains a material mistake or that the permit must be revised or revoked to assure compliance with the applicable requirements.
(3) The DEQ or the EPA determines that inaccurate information was used in establishing the emission standards, limitations, or other conditions of this permit. The DEQ may revoke and not reissue this permit if it determines that the permittee has submitted false or misleading information to the DEQ.
(4) DEQ determines that the permit should be amended under the discretionary reopening provisions of OAC 252:100-8-7.3(b).

C. The permit may be reopened for cause by EPA, pursuant to the provisions of OAC 100-8-7.3(d). [OAC 100-8-7.3(d)]

D. The permittee shall notify AQD before making changes other than those described in Section XVIII (Operational Flexibility), those qualifying for administrative permit amendments, or those defined as an Insignificant Activity (Section XVI) or Trivial Activity (Section XVII). The notification should include any changes which may alter the status of a "grandfathered source," as defined under AQD rules. Such changes may require a permit modification.

[OAC 252:100-8-7.2(b) and OAC 252:100-5-1.1]

E. Activities that will result in air emissions that exceed the trivial/insignificant levels and that are not specifically approved by this permit are prohibited. [OAC 252:100-8-6(c)(6)]

## SECTION XIII. INSPECTION & ENTRY

A. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized regulatory officials to perform the following (subject to the permittee's right to seek confidential treatment pursuant to 27A O.S. Supp. 1998, § 2-5-105(18) for confidential information submitted to or obtained by the DEQ under this section):

(1) enter upon the permittee's premises during reasonable/normal working hours where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
(2) have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
(3) inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
(4) as authorized by the Oklahoma Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit.

[OAC 252:100-8-6(c)(2)]

## SECTION XIV. EMERGENCIES

A. Any exceedance resulting from an emergency shall be reported to AQD promptly but no later than 4:30 p.m. on the next working day after the permittee first becomes aware of the exceedance. This notice shall contain a description of the emergency, the probable cause of the exceedance, any steps taken to mitigate emissions, and corrective actions taken.

[OAC 252:100-8-6 (a)(3)(C)(iii)(I) and (IV)]

B. Any exceedance that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to AQD as soon as is practicable; but under no circumstance shall notification be more than 24 hours after the exceedance. [OAC 252:100-8-6(a)(3)(C)(iii)(II)]

C. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the

extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. [OAC 252:100-8-2]
D. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that: [OAC 252:100-8-6 (e)(2)]

(1) an emergency occurred and the permittee can identify the cause or causes of the emergency;
(2) the permitted facility was at the time being properly operated;
(3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.

E. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [OAC 252:100-8-6(e)(3)]

F. Every written report or document submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.
[OAC 252:100-8-6(a)(3)(C)(iv)]

## SECTION XV. RISK MANAGEMENT PLAN

The permittee, if subject to the provision of Section 112(r) of the Clean Air Act, shall develop and register with the appropriate agency a risk management plan by June 20, 1999, or the applicable effective date. [OAC 252:100-8-6(a)(4)]

## SECTION XVI. INSIGNIFICANT ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate individual emissions units that are either on the list in Appendix I to OAC Title 252, Chapter 100, or whose actual calendar year emissions do not exceed any of the limits below. Any activity to which a State or Federal applicable requirement applies is not insignificant even if it meets the criteria below or is included on the insignificant activities list.

(1) 5 tons per year of any one criteria pollutant.
(2) 2 tons per year for any one hazardous air pollutant (HAP) or 5 tons per year for an aggregate of two or more HAP's, or 20 percent of any threshold less than 10 tons per year for single HAP that the EPA may establish by rule.

[OAC 252:100-8-2 and OAC 252:100, Appendix I]

## SECTION XVII. TRIVIAL ACTIVITIES

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate any individual or combination of air emissions units that are considered inconsequential and are on the list in Appendix J. Any activity to which a State or Federal applicable requirement applies is not trivial even if included on the trivial activities list.

[OAC 252:100-8-2 and OAC 252:100, Appendix J]

## SECTION XVIII. OPERATIONAL FLEXIBILITY

A. A facility may implement any operating scenario allowed for in its Part 70 permit without the need for any permit revision or any notification to the DEQ (unless specified otherwise in the permit). When an operating scenario is changed, the permittee shall record in a log at the facility the scenario under which it is operating. [OAC 252:100-8-6(a)(10) and (f)(1)]

B. The permittee may make changes within the facility that:

(1) result in no net emissions increases,
(2) are not modifications under any provision of Title I of the federal Clean Air Act, and
(3) do not cause any hourly or annual permitted emission rate of any existing emissions unit to be exceeded;

provided that the facility provides the EPA and the DEQ with written notification as required below in advance of the proposed changes, which shall be a minimum of seven (7) days, or twenty four (24) hours for emergencies as defined in OAC 252:100-8-6 (e). The permittee, the DEQ, and the EPA shall attach each such notice to their copy of the permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield provided by this permit does not apply to any change made pursuant to this paragraph. [OAC 252:100-8-6(f)(2)]

## SECTION XIX. OTHER APPLICABLE & STATE-ONLY REQUIREMENTS

A. The following applicable requirements and state-only requirements apply to the facility unless elsewhere covered by a more restrictive requirement:

(1) Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning Subchapter. [OAC 252:100-13]
(2) No particulate emissions from any fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lb/MMBTU. [OAC 252:100-19]

(3) For all emissions units not subject to an opacity limit promulgated under 40 C.F.R., Part 60, NSPS, no discharge of greater than 20% opacity is allowed except for: [OAC 252:100-25]

(a) Short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity;
(b) Smoke resulting from fires covered by the exceptions outlined in OAC 252:100-13-7;
(c) An emission, where the presence of uncombined water is the only reason for failure to meet the requirements of OAC 252:100-25-3(a); or

(d) Smoke generated due to a malfunction in a facility, when the source of the fuel producing the smoke is not under the direct and immediate control of the facility and the immediate constriction of the fuel flow at the facility would produce a hazard to life and/or property.

(4) No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]

(5) No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lb/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]

(6) Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with a vapor-recovery system. [OAC 252:100-37-15(b)]

(7) All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

## SECTION XX. STRATOSPHERIC OZONE PROTECTION

A. The permittee shall comply with the following standards for production and consumption of ozone-depleting substances: [40 CFR 82, Subpart A]

(1) Persons producing, importing, or placing an order for production or importation of certain class I and class II substances, HCFC-22, or HCFC-141b shall be subject to the requirements of §82.4;
(2) Producers, importers, exporters, purchasers, and persons who transform or destroy certain class I and class II substances, HCFC-22, or HCFC-141b are subject to the recordkeeping requirements at §82.13; and
(3) Class I substances (listed at Appendix A to Subpart A) include certain CFCs, Halons, HBFCs, carbon tetrachloride, trichloroethane (methyl chloroform), and bromomethane (Methyl Bromide). Class II substances (listed at Appendix B to Subpart A) include HCFCs.

B. If the permittee performs a service on motor (fleet) vehicles when this service involves an ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all applicable requirements. Note: The term "motor vehicle" as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term "MVAC" as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant. [40 CFR 82, Subpart B]

C. The permittee shall comply with the following standards for recycling and emissions reduction except as provided for MVACs in Subpart B: [40 CFR 82, Subpart F]

(1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to § 82.156;
(2) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to § 82.158;
(3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to § 82.161;
(4) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record-keeping requirements pursuant to § 82.166;
(5) Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to § 82.158; and
(6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to § 82.166.

## SECTION XXI. TITLE V APPROVAL LANGUAGE

A. DEQ wishes to reduce the time and work associated with permit review and, wherever it is not inconsistent with Federal requirements, to provide for incorporation of requirements established through construction permitting into the Source's Title V permit without causing redundant review. Requirements from construction permits may be incorporated into the Title V permit through the administrative amendment process set forth in OAC 252:100-8-7.2(a) only if the following procedures are followed:

(1) The construction permit goes out for a 30-day public notice and comment using the procedures set forth in 40 C.F.R. § 70.7(h)(1). This public notice shall include notice to the public that this permit is subject to EPA review, EPA objection, and petition to EPA, as provided by 40 C.F.R. § 70.8; that the requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process; that the public will not receive another opportunity to provide comments when the requirements are incorporated into the Title V permit; and that EPA review, EPA objection, and petitions to EPA will not be available to the public when requirements from the construction permit are incorporated into the Title V permit.
(2) A copy of the construction permit application is sent to EPA, as provided by 40 CFR § 70.8(a)(1).
(3) A copy of the draft construction permit is sent to any affected State, as provided by 40 C.F.R. § 70.8(b).
(4) A copy of the proposed construction permit is sent to EPA for a 45-day review period as provided by 40 C.F.R.§ 70.8(a) and (c).
(5) The DEQ complies with 40 C.F.R. § 70.8(c) upon the written receipt within the 45-day comment period of any EPA objection to the construction permit. The DEQ shall not issue the permit until EPA's objections are resolved to the satisfaction of EPA.
(6) The DEQ complies with 40 C.F.R. § 70.8(d).
(7) A copy of the final construction permit is sent to EPA as provided by 40 CFR § 70.8(a).
(8) The DEQ shall not issue the proposed construction permit until any affected State and EPA have had an opportunity to review the proposed permit, as provided by these permit conditions.

(9) Any requirements of the construction permit may be reopened for cause after incorporation into the Title V permit by the administrative amendment process, by DEQ as provided in OAC 252:100-8-7.3(a), (b), and (c), and by EPA as provided in 40 C.F.R. § 70.7(f) and (g).

(10) The DEQ shall not issue the administrative permit amendment if performance tests fail to demonstrate that the source is operating in substantial compliance with all permit requirements.

B. To the extent that these conditions are not followed, the Title V permit must go through the Title V review process.

## SECTION XXII. CREDIBLE EVIDENCE

For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any provision of the Oklahoma implementation plan, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[OAC 252:100-43-6]